1/21/85 S6260-6(W)A-

AN ASSESSMENT OF THE SUPPLIES OF NATURAL GAS AND FUELS FOR GENERATING ELECTRICITY IN OHIO

FROM NOVEMBER 1983 through OCTOBER 1984

PRESENTED TO
GOVERNOR RICHARD F. CELESTE,
THE OHIO GENERAL ASSEMBLY, AND
THE PUBLIC UTILITIES COMMISSION OF OHIO

LIBRARY
DIVISION OF ENERGY

Ohio Department of Development
Division of Energy
30 East Broad Street, 34th Floor
Columbus, Ohio 43215

Richard F. Celeste, Governor
Alfred S. Dietzel, Director

ODOE
83-012

STATE OF OHIO

Department of Development

P.O. Box 1001 • Columbus, Ohio • 43216

December 15, 1993

The Honorable Richard F. Celeste
Governor
Statehouse
Columbus, Ohio 43215

DIVISION OF ENERGY

Dear Governor Celeste:

Pursuant to ORC 4905.14, each public electric and gas utility in Ohio is required to file with the Ohio Department of Development, Division of Energy, a report on July and November 1, containing projections of the utilities' total demand and fuel supply over the following 12 months. As required by the same statute, we sent copies of the utilities' latest reports to you in November.

The attached report is a summary and analysis of these reports, also required by 4905.14. It includes an evaluation of the Ohio natural gas and electric situation for the coming winter and the next twelve months. It appears at this time that fuel supplies for manufacturing and heating, and for generating electricity will be adequate, even with a 10 percent colder than normal winter and Ohio's increasing industrial activity.

The only foreseeable potential supply disruption would be as a result of a coal miners' strike. The current United Mine Workers contract expires on September 30, 1994. With approved Emergency Rules on file, we remain prepared to respond to emergency disruptions in fuel supply, such as those possible from crises in the Middle East or from a coal strike.

Sincerely,

Alfred S. Dietzel
Director

ASD/ra

cc: Thomas Smith, Senate Clerk
Ty Marsh, Clerk of the House
Michael Del Bane, PUCO Chairman

12/14/93

EXECUTIVE SUMMARY

Based on one year forecasts submitted by each of the major electric and natural gas utility companies serving Ohio, and based on independent projections of the Ohio Division of Energy, the supplies of fuels for generating electricity and supplies of natural gas for heating and manufacturing are forecast to be adequate through October 1984. The forecast takes into account the possibility of a 10 percent colder than normal winter and the increased energy demand resulting from accelerating statewide economic recovery.

Supplies of coal, used to generate more than 95 percent of electricity in Ohio, are not expected to fall below a safe two month supply margin for any generating utility company through October 1984. Projection of coal supply beyond October 1984 is highly dependent on the potential of a coal strike when the United Mine Workers contract expires September 30, 1984. The possibility of a strike and subsequent preparation for fuel supplies will be discussed in the August 1984 edition of this report. Roughly fifty percent of the coal supplied to Ohio electric utilities is from out of state.

Supplies of the eight major natural gas distribution companies serving the state are expected to be ample. In addition to the actual delivered product, gas in storage will be sufficient to meet additional demand in the event of a 10 percent colder than normal winter or strong industrial recovery. Approximately ninety percent of Ohio's natural gas supply will continue to come from out of state sources.

An Assessment of the Supplies of Natural Gas
and Fuels for Generating Electricity in Ohio
from November 1983 - October 1984

Table of Contents

Executive Summary i

List of Tables iii

List of Figures vi

I. Introduction 1
- Objectives 2
- Requirements and Scope of This Report 2
- Overview of This Report 3
- Temperature and Energy Consumption 4

II. Electricity 8
- Supply and Generation 9
  - Source/Supplier of Fuel for Electric Generation 9
  - Electric Generation by Type of Fuel 9
- Historical Behavior of Sectoral Requirements 10
- Twelve Month Electricity Demand Forecasts 10
  - Electric Demand Forecasts by Utility Service Area 11
- Assessment of Utility Fuel Adequacy 12
  - Coal 13
  - Oil 13
  - 14

III. Natural Gas 31
- Distribution and Supply 31
- Historical Behavior of Sectoral Requirements 33
- Utility Forecasts: Twelve Month Outlook 36
- DOE Independent Forecast 38
  - Methodology 38
  - Result and Outlook 39
- Alternative Fuel Use Capability Profile 41

IV. Appendices 70
- Appendix A: Electricity 70
- Appendix B: Natural Gas 87

List of Tables

1. Population-Weighted Heating Degree-Day Summary for Ohio 6
2. Source of Coal Supply to Electric Utilities (Ohio Portion) 15
3. Major Oil Suppliers to Electric Utilities (Ohio Portion) 17
4. Major Ohio Utilities - Net Generation by Type of Fuel (Ohio Portion) 19
5. Major Ohio Electric Utilities' Fuel Consumption and Stocks (Ohio Portion) 21
6. Ohio Electricity Consumption 22
7-A. Ohio Electric Utilities' Projected Deliveries, Consumption, and Stocks of Coal for Electricity Generation 25
7-B. Ohio Electric Utilities' Projected Deliveries, Consumption, and Stocks of Oil for Electricity Generation 26
7-C. Electric Utilities' Demand Forecast, Fuel Assessment, and Inventory Model 27
8. Total Natural Gas Requirements of All Commercial Utilities in Ohio 42
9. Sources of Natural Gas Supplies to the Eight Major Gas Utilities 43
10. Weather Sensitivity of Residential Gas Consumption in Ohio 45
11. Ohio Natural Gas Prices in Current Dollars, 1970-1983 46
12. Ohio Natural Gas Prices in Constant Dollars, 1970-1983 47
13. Projected Aggregate Supply and Requirements for Natural Gas for Eight Major Gas Utilities 59
14. Comparison Between One Year of Actual and Forecast Demand for Eight Major Ohio Gas Utilities by Sector 61
15. Comparison Between One Year of Actual and Forecast Supply for Eight Major Ohio Gas Utilities by Source 63
16. Independent Forecasts of Natural Gas Supply and Demand for the Eight Major Ohio Gas Utilities 64
17. Independent Forecast of Annual Natural Gas End Use Requirements, Calendar Year 1984 65
18. Independent Forecasts of Gas Supply and Demand for Cincinnati Gas and Electric Company 66

List of Tables (Continued)

19. Independent Forecasts of Gas Supply and Demand for Columbia Gas of Ohio 67

20. Independent Forecasts of Gas Supply and Demand for Dayton Power and Light Company 68

21. Independent Forecasts of Gas Supply and Demand for East Ohio Gas Company 69

Appendix A

A-1. Allegheny Power System Forecast of Electric Energy Demand 71

A-2. American Electric Power Forecast of Electric Energy Demand 72

A-3. Cincinnati Gas and Electric Forecast of Electric Energy Demand . . . 73

A-4. Cleveland Electric Illuminating Company Forecast of Electric Energy Demand 74

A-5. Dayton Power and Light Forecast of Electric Energy Demand 75

A-6. Ohio Edison Company Forecast of Electric Energy Demand 76

A-7. Ohio Valley Electric Corporation Forecast of Electric Energy Demand 77

A-8. Toledo Edison Company Forecast of Electric Energy Demand 78

A-9. Independent Forecast of Ohio Electricity Demand, Residential Sector 79

A-10. Independent Forecast of Ohio Electricity Demand, Commercial Sector 81

A-11. Independent Forecast of Ohio Electricity Demand, Industrial Sector 83

A-12. Independent Forecast of Electric Energy Demand, All Sectors 85

Appendix B

B-1. Cincinnati Gas and Electric Forecast of Natural Gas Requirements 88

B-2. Columbia Gas of Ohio Forecast of Natural Gas Requirements 89

B-3. Dayton Power and Light Forecast of Natural Gas Requirements 90

B-4. East Ohio Gas Forecast of Natural Gas Requirements 91

B-5. Independent Forecast of Ohio Natural Gas End User Requirements, Residential Sector 92

Appendix B Tables (Continued)

B-6. Independent Forecast of Ohio Natural Gas End User Requirements, Commercial Sector 93

B-7. Independent Forecast of Ohio Natural Gas End User Requirements, Industrial Sector 94

B-8. Independent Forecast of Ohio Natural Gas Requirements, Total, All Sectors 95

B-9. Projected Supply and Demand for Eight Major Ohio Natural Gas Utilities 96

B-10. Quantitative Analyses of Historical Natural Gas Requirements in Ohio 98

B-10. Integrated Time Path Models of Ohio Sectoral Natural Gas Requirements 101

B-10A. (Statistical Summary) Integrated Time Path Models of Ohio Sectoral Natural Gas Requirements 103

List of Figures

2-1. Population-Weighted State Degree-Days for Ohio 7

3-1. Monthly Coal Deliveries to Power Plants in Ohio 16

3-2. Monthly Oil Deliveries to Power Plants in Ohio 18

3-3. Major Ohio Electric Utilities Net Generation by Type of Fuel, Ohio Portion 20

5-1A. Comparison of Ohio Electricity Consumption by Sector 23

5-1B. Ohio Total Electricity Consumption 24

6-1. Sources of Natural Gas Supply to the Eight Major Ohio Gas Utilities 44

7-1. Monthly Ohio Residential Natural Gas Consumption 48

7-2. Monthly Ohio Commercial Natural Gas Consumption 49

7-3. Monthly Ohio Industrial Natural Gas Consumption 50

7-4. Monthly Ohio Total Natural Gas Consumption 51

7-5. Ohio Total Natural Gas Consumption 52

7-6. Ohio Residential Natural Gas Consumption 53

7-7. Ohio Commercial Natural Gas Consumption 54

7-8. Ohio Industrial Natural Gas Consumption 55

7-9. Ohio Transportation Natural Gas Consumption 56

7-10. Ohio Electric Utility Natural Gas Consumption 57

7-11. Ohio Natural Gas Consumption by Sector 58

7-12. Projected Supply and Requirements of Natural Gas, Eight Major Companies 60

7-13. Projected Gas Requirements for Ohio by Sector for Eight Major Companies 62

Appendix A

A-1. Monthly Ohio Residential Electricity Consumption, Actual and Projected 80

A-2. Monthly Ohio Commercial Electricity Consumption, Actual and Projected 82

List of Figures (Continued)

4-3. Monthly Ohio Industrial Electricity Consumption, Actual and Projected 84

4-4. Total Monthly Electricity Consumption, Actual and Projected 86

I. INTRODUCTION

This report has been prepared by the Ohio Department of Development, Division of Energy (ODOE), pursuant to Section 4905.14(E) of the Ohio Revised Code. The statute requires ODOE to provide a summary, analysis and recommendations based on the Ohio public utilities' energy supply and demand projections for the twelve month period beginning November 1, 1993. In accordance with Section 4905.14(D), a copy of each utility's November forecast was submitted to the Governor, Clerk of the Ohio Senate, the Legislative Clerk of the Ohio House of Representatives, and the Public Utilities Commission of Ohio on November 10, 1993. The utilities' forecasts and historical data are the primary input for this report. Several other sources of information have also been used, including historical energy data developed by the Ohio Division of Energy, federal energy reports, and publications from the American Gas Association and the Electric Power Research Institute. A substantial and successful effort has been undertaken to develop a comprehensive data base which supports the Division of Energy's ability to provide timely analyses and forecasts.

Objectives

Major objectives guiding the preparation of this report include:

1. To provide an adequate historical, energy-related data profile for identification of current status and future trends;
2. To provide analysis and interpretation of short-term changes in energy supply and demand;
3. To provide an assessment of the adequacy of natural gas and electric energy supply for the upcoming twelve months; and
4. If a potential deficiency between supply and demand is identified, to suggest a strategy to prevent or mitigate any interruption or curtailment of service.

Requirements and Scope of This Report

Utilities are required to file short-term forecast information by Ohio Revised Code Section 4905.11, effective November 1, 1978. The Division prepares a summary and analysis of this information under paragraph (E) of this section.

The municipal utilities, industrial facilities and the rural electric cooperatives are not required to file the semi-annual report. Accordingly this report incorporates data from the major electric and gas utilities serving the state. The Ohio Division of Energy estimates that the major utilities provide approximately

:= percent of the electricity consumed in the state and 93 percent of the natural gas, excluding self-help gas.

Ohio Division of Energy Forecasts

As part of its analysis, the Ohio Division of Energy makes its own independent forecasts to serve as validation checks. The Division has the capability to forecast monthly demand by utility and for the state as a whole within a reasonable level of error (less than five percent in most cases). Such forecasts are based on historical month-by-month actual consumption for both electricity and natural gas and other appropriate variables such as population, income and temperature data. As in any forecast, certain important socioeconomic conditions are assumed in the independent forecasts. These assumptions are stated below:

1. Energy demand generally follows its historical consumption pattern.
2. Socioeconomic changes are minimal in affecting demand for energy in the short run.
3. The observed level of conservation will remain in effect.
4. Other specific assumptions are stated where appropriate.

Overview of this Report

The report is divided into two parts: electric energy and natural gas. Materials presented in these two parts are, for the most part, parallel in arrangement. They contain:

(a) a profile of reporting utilities;

(b) historical sources of supplies/suppliers;

(c) consumption history by sector, utility, and state; and

(d) the utilities' forecasts and independent forecasts by the Ohio Division of Energy.

Temperature and Energy Consumption

Changes in the observed annual energy requirements of the three major consuming sectors (industrial, commercial, residential) may be explained by a variety of factors. Temperature is a variable which explains much of the observed variation. It is particularly significant in the residential and commercial sectors, during summer and winter periods, when electricity and natural gas are used to maintain comfortable room temperatures.

Two indicators which measure temperature-sensitive energy requirements are heating degree days and cooling degree days. The daily mean temperature is obtained by adding together the maximum and minimum temperatures reported for the day and dividing the total by two. When the daily mean temperature is 65^0 F, the degree day total is zero. Each degree of mean temperature below 65^0 F is counted as one heating degree day. This indicator is convenient because the amount of heat required to maintain a certain temperature level is proportional to heating degree days.

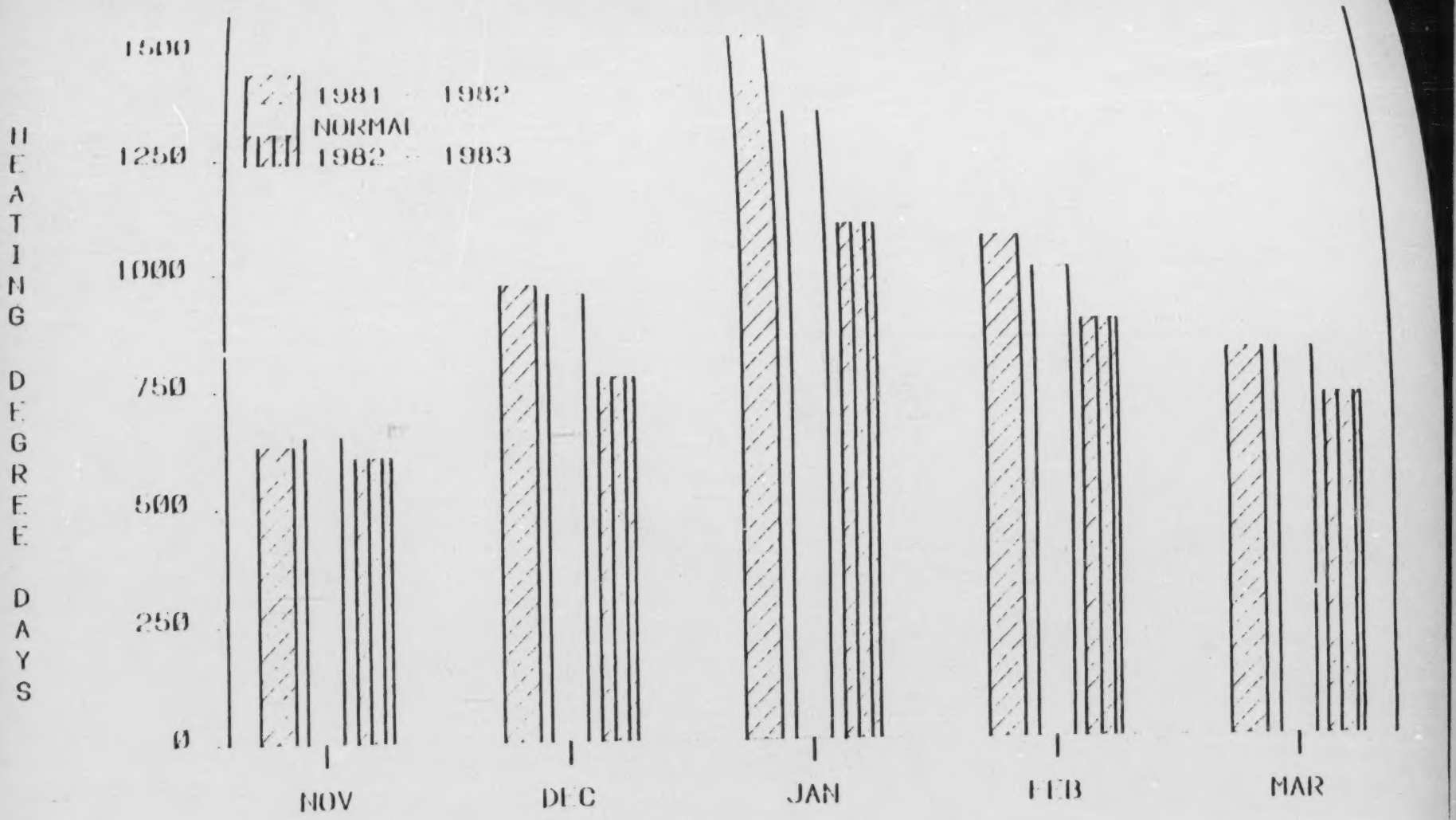
The cooling degree days are defined similarly: each degree of mean temperature above 65^0 F is counted as one cooling degree day. If the daily mean temperature is 65^0 F or lower, the cooling degree day total is zero.

Since most homes and commercial buildings in Ohio are heated by natural gas, the reporting gas utilities are required to submit supply and demand forecasts under a normal winter scenario and a 10 percent colder than normal winter scenario. In addition, the relationship between natural gas consumption and heating degree days is closely monitored during the winter heating season (from November through March). Table 1 and Figure 1 show, for the past two heating seasons, population-weighted state heating degree day summaries. In addition, a normal heating degree day series, defined as the 30-year average of the years 1941 to 1970, is also presented.

Table 1. Population-Weighted
Heating Degree-Day Summary for Ohio
November 1982 through March 1983

Month	Heating Season (November-March)		
	1982-1983	Norm	1981-1982
November	606	654	632
Deviation from Norm	-7.3%	--	-3.4%
Deviation from Previous Year	-4.1%	--	-10.9%
December	774	948	971
Deviation from Norm	-18.4%	--	2.4%
Deviation from Previous Year	-20.3%	--	0.5%
January	1,099	1,350	1,535
Deviation from Norm	-18.6%	--	13.7%
Deviation from Previous Year	-28.4%	--	4.2%
February	888	997	1,066
Deviation from Norm	-10.9%	--	6.9%
Deviation from Previous Year	-16.7%	--	16.2%
March	726	822	824
Deviation from Norm	-11.7%	--	0.2%
Deviation from Previous Year	-11.9%	--	-4.3%

Source: National Oceanic and Atmospheric Administration and the Ohio Division of Energy.



SOURCE: NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

II. ELECTRICITY

This section is based on the November forecasts filed by nine major Ohio electric utilities. Two of these, Columbus and Southern Ohio Electric Company and Ohio Power Company, are subsidiaries of the American Electric Power Company. Since American Electric Power operates as a centrally dispatched, integrated distribution system, the report reviews forecasts of demand and fuel adequacy for the entire American Electric Power Company. The Allegheny Power System is also a centralized power generation and distribution system, of which one subsidiary is Monongahela Power. Thus, the forecasts of eight utilities are presented in the report. They are:

1. Allegheny Power System (APS)
   - Monongahela Power
   - Other out-of-state utilities not subject to reporting
2. American Electric Power Company (AEP)
   - Columbus and Southern Electric Company (C&SOE)
   - Ohio Power Company (OP)
   - Other out-of-state utilities not subject to reporting
3. Cincinnati Gas and Electric Company (CG&E)
4. Cleveland Electric Illuminating Company (CEI)
5. Dayton Power and Light Company (DP&L)
6. Ohio Edison Company (and its subsidiary Pennsylvania Power) (OE)
7. Ohio Valley Electric Corporation (OVEC)
8. Toledo Edison Company (TE)

.ith the exception of OVEC, each of these is an investor-owned .tility supplying electricity to residential, commercial, and .ndustrial customers in its service areas. The Ohio Valley :lectric Corporation is a single-customer utility supplying power for the uranium enrichment plant at Piketon, Ohio. It also sells surplus generation to other electric utilities.

Supply and Generation

Source/Supplier of Fuel for Electric Generation

Fuels used in Ohio for electric generation include coal, oil, natural gas and nuclear fuel. Nuclear fuel sources are not monitored by the Division. All other fuels are monitored through the utilities' monthly reports. Tables 2 and 3 (following) list coal and oil deliveries to power plants located in Ohio. The main sources of supply and/or suppliers of these fuels remain the same as in the last reporting period.

Coal deliveries to Ohio electric plants during the twelve months ending August 1983, declined by 7,582,700 tons from the previous twelve month period, a decline of 15.9 percent (Table 2 and Figure 2). Deliveries of oil to Ohio power plants decreased by 363,800 barrels during the twelve months ending August 1983 from the previous twelve month period, a decrease of 48.2 percent (Table 3 and Figure 3). The decline in coal deliveries is attributable to slackening demand for electricity, while the decrease in oil deliveries was occasioned by a significantly large purchase of oil by the Ohio Edison Company in August 1982.

Electric Generation by Type of Fuel

Coal remains the main source of fuel for electric generation in Ohio, a condition which is not expected to change in the foreseeable future. In the twelve month period ending August 1983, 94.2 percent of the total electricity generated in Ohio was from coal. Electricity generated by oil continued to decline to a negligible 0.1 percent of total generation. Nuclear-generated electricity accounted for 5.7 percent of electricity generated in the state in the twelve months ending August 1983. From April through August 1982, Davis-Besse was shut down for maintenance. It began generating electricity in September 1982 and was shut down for refueling in July 1983. Operations resumed in September 1983 with the next refueling scheduled for August 1984.

Table 4 and Figure 4 show the combined monthly totals of the reporting utilities' net generation from Ohio plants. Historical power plant fuel consumption and fuel stocks are displayed in Table 5. The decline in coal stocks in mid-1981 was occasioned by a coal strike settled in June of that year.

Historical Behavior of Sectoral Requirements

Since the 1973 OPEC oil embargo and because of the escalation of energy prices, the pattern of electricity consumption in Ohio has changed dramatically. Increasing prices have stimulated conservation activities and fostered economic conditions that have resulted in reduced growth rates in the demand for electricity. For the twelve month period ending in August 1983, total electricity consumption in the state was 4.2 percent lower than

during the preceding twelve month period (see Table 6 and (Figures 4A, 5A), though consumption has shown some signs of increase in recent months. Comparing 1981-82 with 1982-83 usage, residential sector consumption declined 2.6 percent, commercial sector consumption increased 0.3 percent and industrial sector consumption declined 6.5 percent.

Electric consumption by the residential and commercial sectors exhibits regular seasonal patterns while the industrial sector fluctuates widely with general economic conditions. (See Appendix A). The mild winter of 1982-83 resulted in decreased residential sector demand, particularly during the months of January through March (Table 6 and Figure 5A). In December 1982 industrial electricity consumption dipped lower than any previously recorded consumption level since January 1971. A severe downturn in the manufacturing sector, particularly in automobile-related industries, has resulted in a monthly industrial demand level of 3100 to 3400 megawatt-hours. It appears, however, that monthly consumption of electricity by the industrial sector is increasing with the current economic recovery. The August consumption of 3542 megawatt-hours is the highest monthly industrial consumption since November 1982.

Twelve Month Electricity Demand Forecasts

Each electric utility submits a forecast of total service area demand for November 1983 through November 1984. These forecasts are displayed in Appendix A, Tables A-1 through A-8, along with independent forecasts prepared by the Ohio Division of Energy. The Ohio Division of Energy also prepares independent twelve month forecasts of electricity demand for the state of Ohio, by sector.

these forecasts are displayed in Appendix A, Tables A-9 through A-13.

Electric Demand Forecasts by Utility Service Area

The Ohio Division of Energy utility service area forecasts are based on monthly data from utility reports from January 1970 through August 1983. No independent forecast is provided for OMEC, because this utility has only one customer whose demand is pre-arranged. Because of the overlapping months for utility forecasts submitted on July 1 and November 1, the utilities may elect to use their previous forecasts for those overlapping months in the new forecasting period.

Three utilities retained their forecasts submitted in July, for the months November 1983 through June 1984. Four utilities adjusted their forecasts for these eight months. Cincinnati Gas and Electric, Cleveland Electric Illuminating, and Allegheny Power System adjusted their forecasts downward by an average of 5.1, 0.6 and 4.7 percent, respectively. Toledo Edison has adjusted its November forecast upward by 4.2 percent and its December forecast upward by 3.3 percent while leaving the other six months unchanged.

The forecasts prepared by ODOE have been revised upward, since July, reflecting the economic upturn of the third quarter. The ODOE forecast for each month is higher than the corresponding forecast of Cleveland Electric Illuminating, Cincinnati Gas and Electric, Dayton Power and Light, and Ohio Edison. Allegheny Power System, American Electric Power, and Toledo Edison have submitted forecasts that are higher than ODOE's forecast for some months and lower than ODOE's forecast for some months. (See Appendix A).

Assessment of Utility Fuel Adequacy

Tables 7-A and 7-B present the utilities' projections of deliveries, consumption, and end-of-month stocks of coal and oil for the generation of electricity. Table 7-C presents the Division's independent assessment of the adequacy of supply of generating fuels. The Division's projections are presented for the CAPCO Group of utilities, which include Cleveland Electric Illuminating, Ohio Edison, and Toledo Edison; for the American Electric Power and Allegheny Power Systems, and for Dayton Power and Light, Cincinnati Gas and Electric, and the Ohio Valley Electric Corporation.

Coal

The Division's projections as well as those of the electric utilities indicate an adequate supply of coal throughout the forecast period for each utility serving the state.

To derive the Ohio Division of Energy projections, average daily requirements of coal were determined by dividing projected monthly coal consumption by the number of days in the month. End-of-month stocks were derived by considering consecutively end of June 1983 stocks, projected monthly coal delivery schedules as submitted by the utilities, and projected monthly coal consumption levels. Number of days' supply of coal was estimated on the basis of average daily requirements in subsequent months and the level of end-of-month stocks for the month in question.

Coal consumption projections were made through the use of a formula which adjusts coal consumption levels for changes in the consumption of oil, natural gas, and nuclear fuel in a manner that is consistent with the projected demand or net energy for load. In making these projections, it is assumed that the following conditions will be satisfied:

1. Monthly demand (net energy for load) for July 1983 through June 1984 will be realized in the manner projected by the utility companies.
2. Energy required to supply projected net energy for load in a given month from July 1983 through June 1984 will be proportional to the energy consumed in supplying the actual net energy for load in the previous twelve month period.
3. Monthly delivery schedules for all fuels in 1983 and 1984 will be met in the manner projected by the utility companies.

Oil

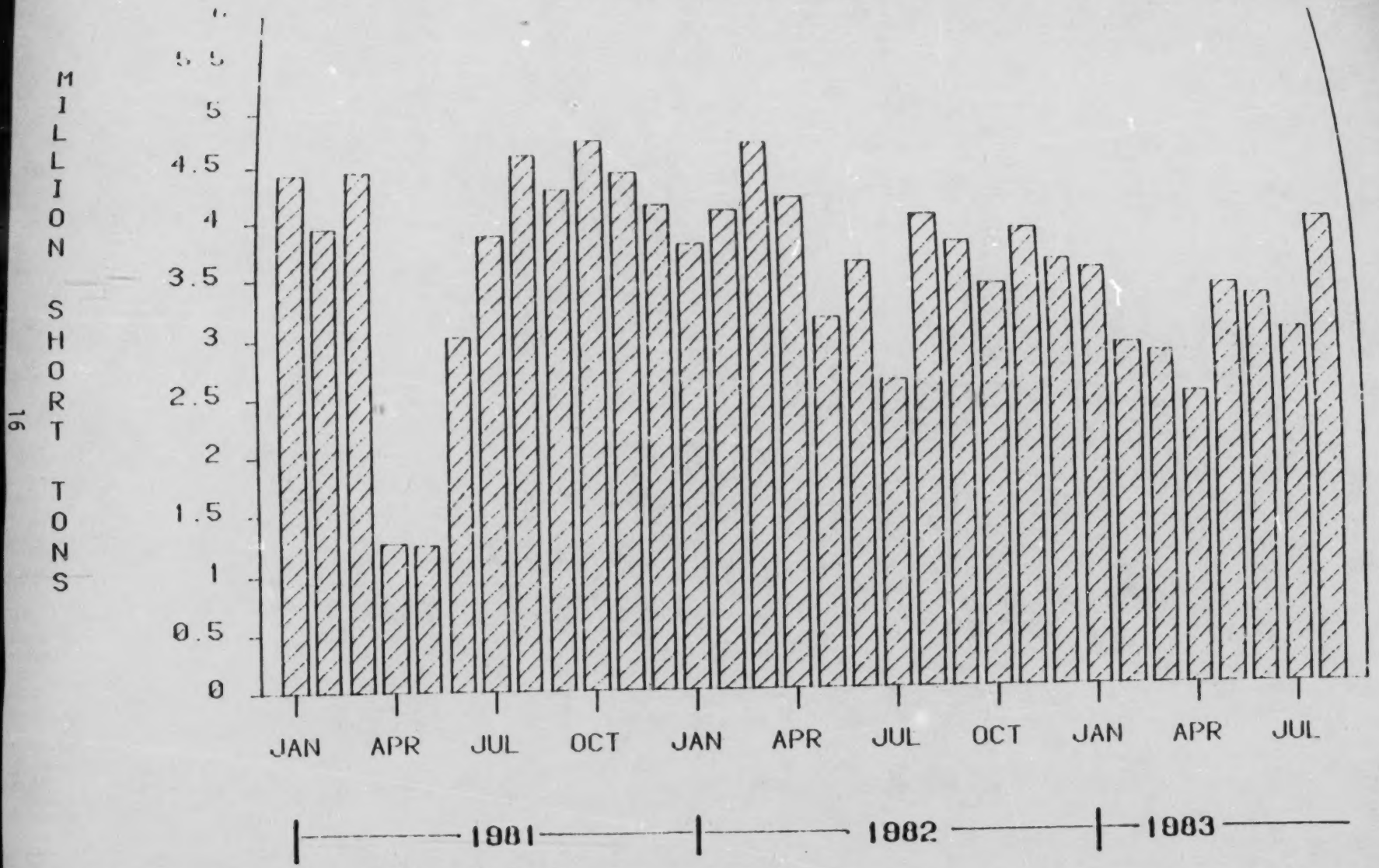
Each electric utility forecasts an adequate supply of oil for the generation of electricity throughout the forecast period. The Division's projections indicate an adequate supply of oil as well. Negative values for end-of-month stocks of oil as displayed in Table 7C are misleading, in light of the continuing decline in the amount of electricity generated by oil that is anticipated this year, and the availability of oil on the spot market. The Division will closely monitor the monthly oil stocks of the Allegheny Power System and Cincinnati Gas and Electric Company throughout the forecast period to ensure their adequacy.

Month	1	2	3	4	6	7 & 8	9	Other	Total
1981									
January	----	137.9	82.7	2,241.6	270.6	1,269.2	106.7	319.4	4,428.1
February	----	178.5	91.2	2,063.3	242.3	1,120.4	37.3	196.4	3,929.8
March	----	193.2	137.2	2,333.0	125.5	1,304.2	19.1	332.3	4,444.5
April	----	98.8	41.7	372.4	20.0	664.4	14.4	51.4	1,263.1
May	----	75.9	4.4	422.7	--------	753.8	1.5	--------	1,258.3
June	-----	75.3	9.1	1,576.2	190.2	1,137.3	23.9	--------	3,012.9
July	-----	157.6	63.6	2,247.1	242.7	874.4	42.4	238.6	3,866.4
August	-----	174.5	76.0	2,351.3	361.9	1,191.5	49.9	376.7	4,581.8
September	----	171.6	30.8	2,386.8	296.3	985.4	124.7	289.0	4,284.6
October	----	201.0	21.6	2,648.6	346.2	1,161.1	71.3	276.4	4,726.2
November	----	170.5	12.1	2,504.1	307.9	1,101.0	91.4	241.1	4,428.1
December	10.9	135.5	281.1	2,309.2	120.0	835.9	215.3	483.3	4,138.3
Total	10.9	1,770.3	598.5	23,456.3	2,523.7	12,398.6	798.3	2,804.6	44,361.2
% of Total	0.0	4.0	2.0	52.9	5.7	28.0	1.8	6.3	
1982									
January	----	120.4	23.9	2,019.3	222.7	1,097.7	103.7	200.2	3,795.9
February	----	123.0	19.4	2,137.4	388.2	1,187.4	51.2	191.7	4,098.3
March	----	173.4	27.9	2,303.4	382.9	1,505.2	56.7	237.9	4,687.4
April	----	136.9	37.3	2,031.0	237.3	1,457.9	109.8	168.8	4,179.0
May	----	109.5	40.3	1,554.9	200.8	1,058.5	28.6	150.8	3,143.4
June	0.7	121.7	31.0	1,976.6	170.0	1,090.1	97.3	134.0	3,621.4
July	----	139.0	12.5	1,537.3	126.3	590.8	76.4	131.8	2,614.1
August	----	134.7	4.3	1,998.6	317.3	1,299.2	79.6	178.7	4,012.4
September	----	139.2	36.4	1,982.4	285.8	1,094.8	67.5	184.8	3,790.9
October	----	173.4	7.1	1,879.1	346.1	859.7	77.6	64.4	3,407.4
November	----	205.9	33.1	1,973.1	306.1	1,202.3	118.2	58.2	3,896.9
December	----	136.0	42.3	1,770.8	297.8	1,106.2	100.2	161.4	3,614.7
Total	0.7	1,721.1	315.5	23,163.9	3,281.3	13,549.8	966.8	1,862.7	44,861.8
% of Total		3.8	0.7	51.6	7.3	30.2	2.2	4.2	
1983									
January	----	105.8	37.9	1,865.6	292.9	938.4	62.2	239.7	3,542.5
February	----	76.0	25.0	1,608.6	291.9	793.3	9.0	102.1	2,905.9
March	----	109.1	9.1	1,274.6	349.9	973.2	5.8	98.7	2,820.4
April	----	85.5	14.7	1,438.8	240.0	685.5	12.0	--------	2,476.5
May	----	166.3	26.7	1,937.3	264.2	1,003.2	4.4	1.5	3,403.6
June	----	160.7	38.0	1,945.5	140.5	991.0	29.9	6.3	3,311.9
July	----	172.4	37.5	1,792.4	73.6	872.4	58.7	--------	3,007.0
August	----	267.1	56.6	2,172.1	185.5	1,234.3	48.7	4.4	3,968.7

District

1. Eastern Pennsylvania
2. Western Pennsylvania
3. Northern West Virginia
4. Ohio
6. Pandhandle in West Virginia
7. Southern No. 1 (in West Virginia and Virginia)
8. Southern No. 2 (in West Virginia and Eastern Kentucky)
9. Western Kentucky

Other - Primarily from Wyoming and Utah

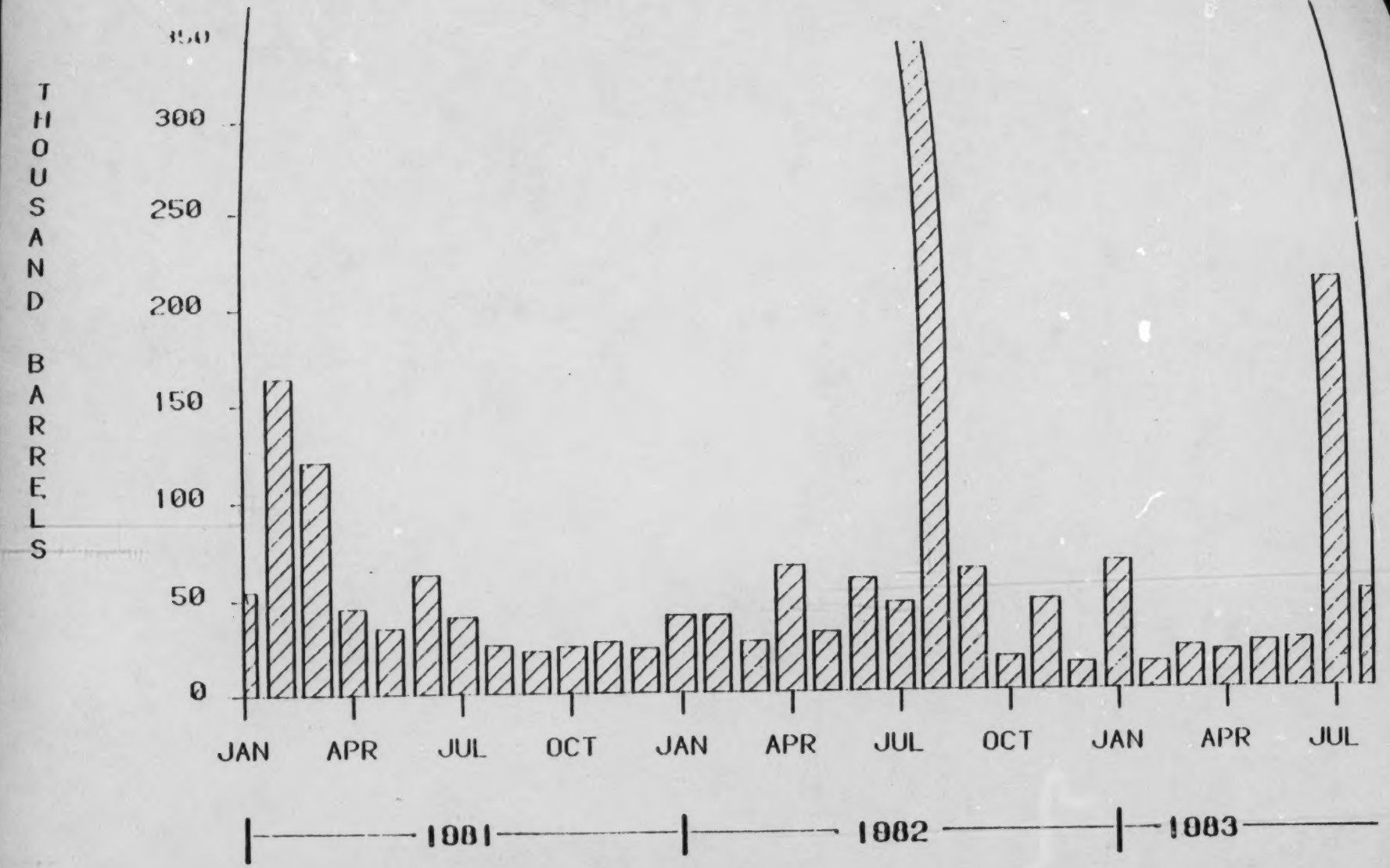


SOURCE: OHIO DIVISION OF ENERGY.

Table 3. Major Oil Suppliers to Electric Utilities
(Ohio Portion)
(Thousand Barrels)

	Allied	Marathon	McCarthy	Standard	Union	Other	Total
	32.6	1.0	---	0.7	3.6	16.0	53.9
	41.8	---	---	4.0	2.6	15.6	164.0
	93.3	0.2	---	4.5	4.9	17.9	121.3
	36.4	0.2	---	4.4	1.8	2.3	45.1
	28.5	0.2	---	3.4	2.5	0.7	35.3
	53.4	---	---	4.7	2.6	1.1	61.8
	31.8	0.2	---	5.3	2.4	0.8	40.5
	22.0	---	---	3.9	---	0.2	25.1
	16.5	---	---	3.4	1.7	1.0	22.6
	15.3	---	---	4.7	2.2	1.7	24.4
	20.0	0.1	---	5.0	1.7	0.1	26.9
	16.0	0.5	---	4.3	2.2	---	23.0
	508.6	2.4	0.0	48.3	28.2	57.4	644.9
	78.9	0.4	0.0	7.5	4.4	8.9	
	35.9	0.2	---	2.8	1.8	---	40.7
	34.7	0.2	---	2.3	2.9	---	40.1
	21.8	---	---	3.4	1.5	---	26.7
	62.8	---	---	1.8	0.9	---	65.2
	26.8	---	---	2.3	2.2	---	31.3
	50.6	---	---	6.5	1.8	---	58.9
	35.7	0.2	---	7.9	2.3	---	46.1
	140.2	---	---	204.6	2.8	---	347.6
	58.5	0.6	---	3.4	1.2	---	63.7
	13.5	---	---	2.5	1.7	---	17.7
	42.2	---	---	2.5	3.0	---	47.7
	9.4	---	---	1.9	2.8	---	14.1
	531.3	1.2	---	241.9	24.9	---	799.3
	66.5	0.2	---	30.2	3.1	---	
	36.8	18.1	---	9.1	3.0	---	66.7
	7.3	0.2	---	5.2	2.0	---	14.7
	7.0	0.6	---	11.1	2.0	2.0	22.7
	6.8	0.2	---	9.6	2.0	1.0	19.6
	9.2	0.4	---	8.6	4.0	2.1	24.2
	10.9	---	---	11.0	4.0	---	25.9
	11.6	0.2	---	6.7	3.0	---	21.4
	38.8	0.4	---	4.0	3.0	5.2	51.4

: Form FPC 1 and the Ohio Division of Energy

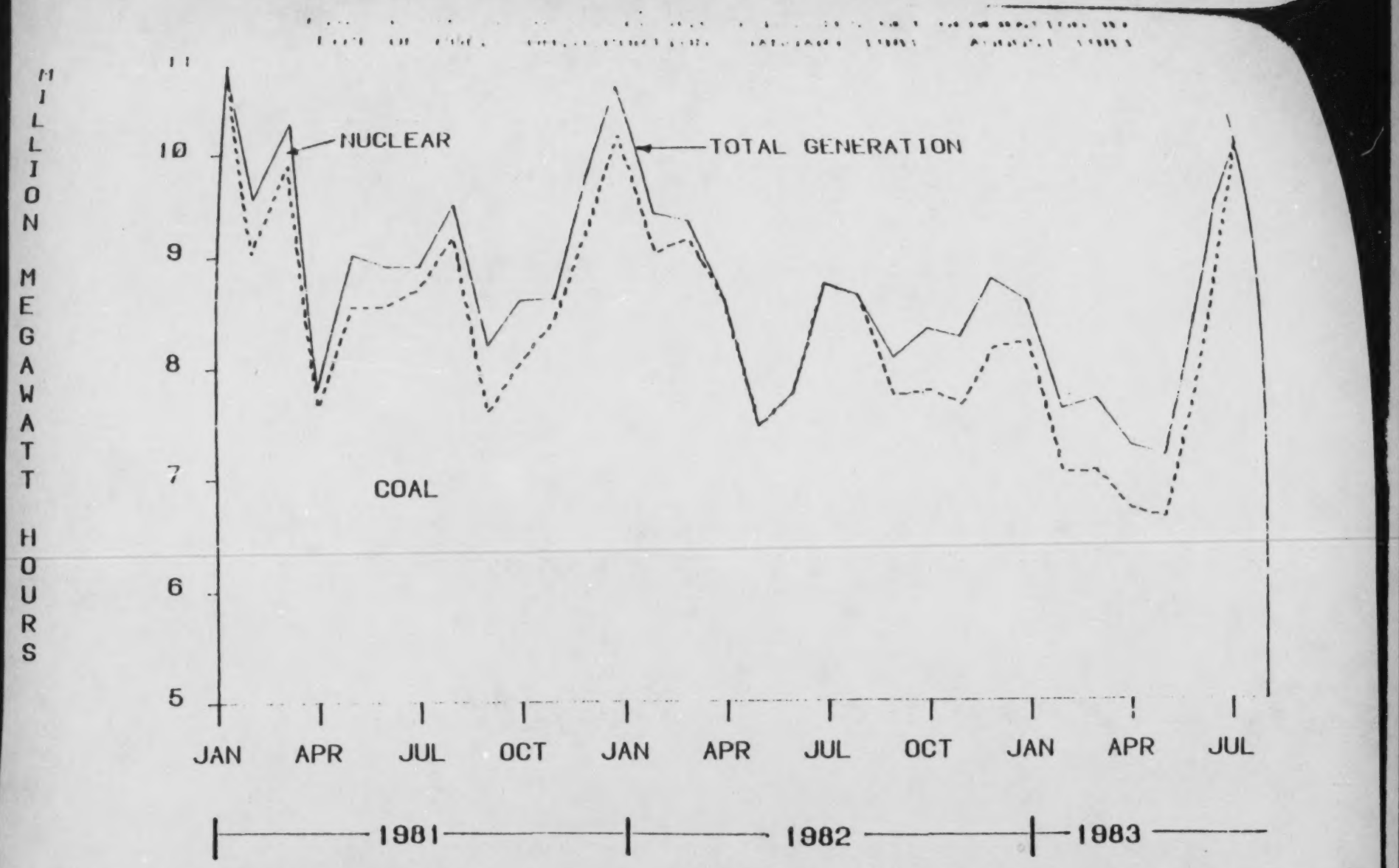


SOURCE: OHIO DIVISION OF ENERGY.

Table 4. Major Ohio Utilities - Net Generation by Type of Fuel (Ohio Portion)
(Thousand MWH)

	Coal	Oil	Gas	Nuclear	Total
1981					
January	10,364	38	8	58	10,968
February	9,032	23	7	513	9,576
March	9,876	31	13	451	10,371
April	7,646	3	2	160	7,810
May	8,547	19	10	477	9,054
June	8,555	18	11	363	8,947
July	8,711	17	12	200	8,941
August	9,186	5	1	313	9,505
September	7,596	4	2	607	8,209
October	8,050	4	1	548	8,603
November	8,426	4	1	189	8,621
December	9,258	2	.5	526	9,786
Total	105,747	168	68.5	4,405	110,391
% of Total	95.8%	0.2%	0.1%	4.0%	
1982					
January	10,194	27	3	576	10,799
February	9,026	6	2	386	9,420
March	9,170	8	3	165	9,347
April	8,593	14	3	0	8,610
May	7,464	13	3	0	7,479
June	7,750	6	0	0	7,756
July	8,741	11	5	0	8,757
August	8,627	12	3	0	8,642
September	7,726	8	1	343	8,078
October	7,778	2	1	537	8,318
November	7,653	2	0	604	8,260
December	8,165	--	0	615	8,780
Total	100,387	109	24	3,226	104,246
% of Total	96.78%	0.1%	0.0%	3.1%	
1983					
January	8,219	-3	1	357	8,574
February	7,041	-1	0	560	7,600
March	7,055	1	1	647	7,705
April	6,716	8	1	574	7,299
May	6,630	4	-9	567	7,202
June	7,822	7	2	567	8,397
July	9,114	9	4	370	9,497
August	10,124	16	3	0	10,143

SOURCE: Form FPC 4 and the Ohio Division of Energy



SOURCE: OHIO DIVISION OF ENERGY.

Table 5. Major Ohio Electric Utilities
Fuel Consumption and Stocks
(Ohio Portion)

	Coal (Thousand Tons)		Oil (Thousand 42-Gal. Bbls.)		Gas (MMCF)
	Burned	In Stock	Burned	In Stock	Burned
1981					
January	4,906.0	12,454.4	143.3	1,055.4	166
February	4,104.6	12,373.3	111.8	1,099.1	164
March	4,456.5	12,454.5	112.2	1,174.3	121
April	3,458.7	10,302.7	70.4	1,154.3	63
May	3,937.0	7,537.9	107.6	1,116.7	119
June	3,971.2	6,742.2	89.0	1,106.0	190
July	3,688.0	6,350.0	99.5	889.6	271
August	4,189.7	7,377.8	60.3	880.1	52
September	3,449.9	8,310.6	51.2	865.6	69
October	3,555.2	9,446.1	61.8	851.5	61
November	3,714.3	10,248.7	71.8	815.8	40
December	4,156.8	10,115.6	57.2	805.8	42
Total	47,589.7	--------	1,036.1	--------	1,358
Avg. Month	3,965.8	9,477.1	86.4	984.5	113
1982					
January	4,629.5	9,351.6	147.9	735.8	119.0
February	4,334.6	9,241.2	71.1	721.3	59.0
March	4,072.6	9,866.8	67.0	723.1	68.0
April	3,832.1	10,153.7	74.1	762.0	73.0
May	3,191.5	10,304.0	75.0	698.4	38.0
June	3,412.2	10,762.3	78.7	733.2	23.0
July	4,023.2	9,239.8	61.8	755.0	25.0
August	3,880.1	9,147.0	74.2	716.6	85.0
September	3,494.3	9,630.0	51.9	779.2	35.4
October	3,453.1	9,814.9	55.7	744.3	34.0
November	3,271.3	9,563.6	72.1	1,456.5	35.4
December	3,591.4	10,082.9	36.5	1,074.5	24.7
Total	45,185.9	117,157.8	866.0	9,399.9	619.5
Avg. Month	3,765.0	9,763.0	72.0	825.0	51.6
1983					
January	3,582.2	9,807.8	51.1	1,470.5	45.5
February	3,068.6	9,694.0	43.5	1,468.1	17.0
March	3,076.2	9,378.9	39.7	1,468.5	42.5
April	2,920.4	9,549.2	46.8	624.9	39.6
May	2,851.0	10,308.8	52.9	410.6	25.6
June	3,347.7	10,363.6	45.3	386.0	68.6
July	3,953.3	9,440.7	57.7	378.4	86.5
August	4,416.1	9,038.8	64.0	365.0	76.5

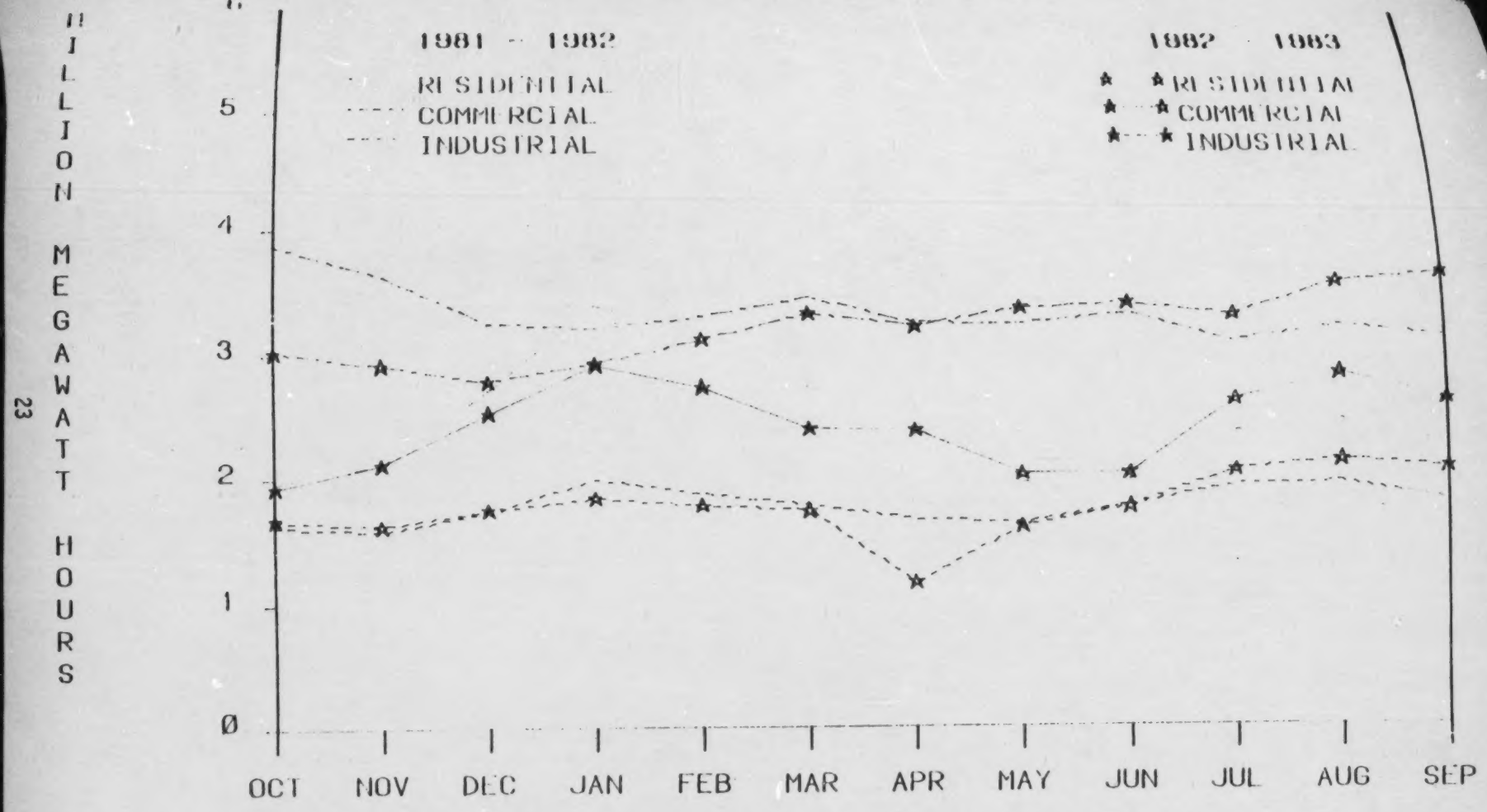
SOURCE: Form FPC 4 and the Ohio Division of Energy

Table 6. Ohio Electricity Consumption
September 1982 - August 1983
(Thousand MWH)

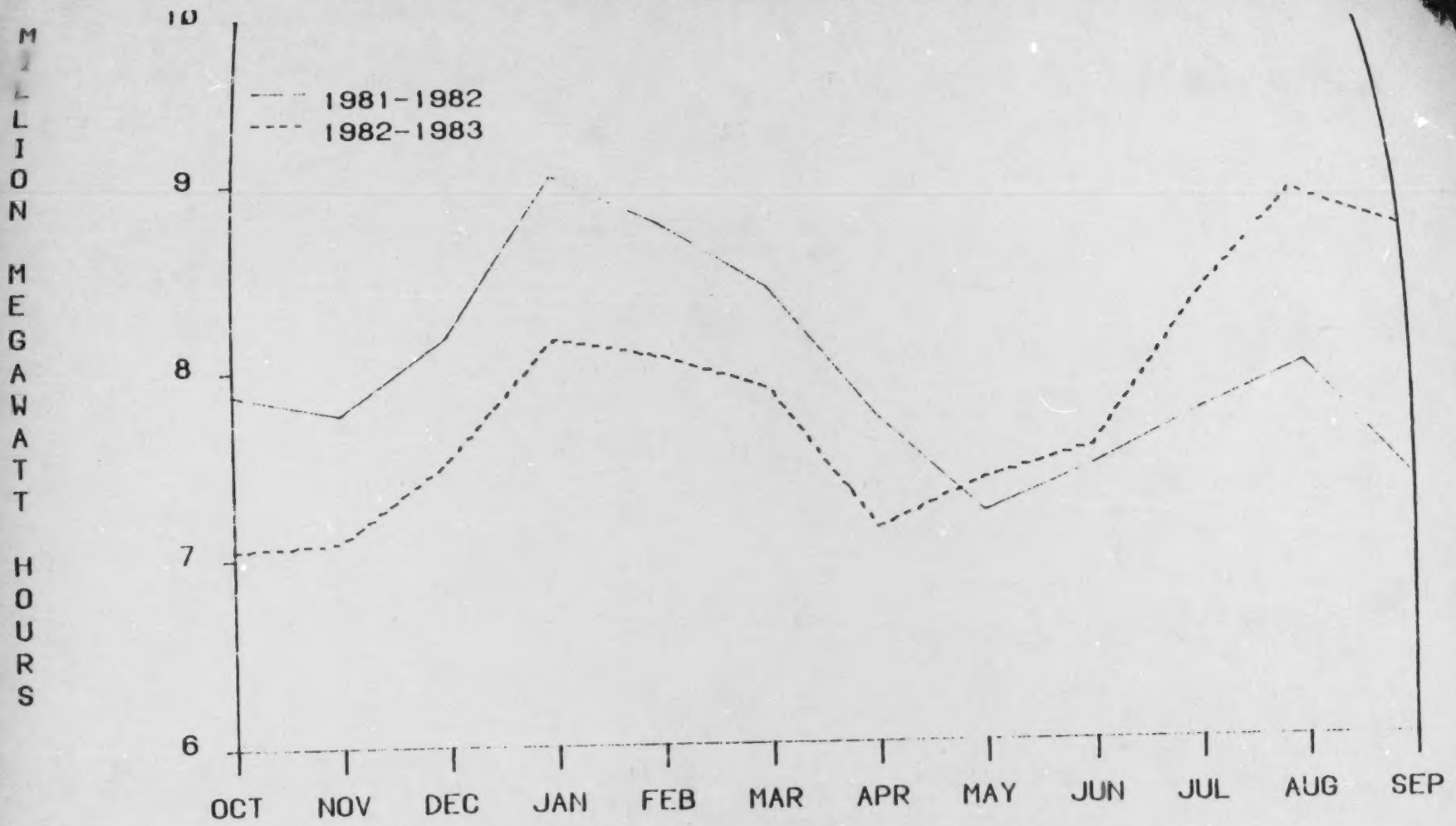
	September	October	November	December	January	February	March	April	May	June	July	August	Total
Residential													
1982-83	2,052.2	1,943.4	2,113.9	2,527.4	2,909.8	2 725.6	2,390.5	2,378.3	2,016.9	2,023.7	2,603.0	2,817.6	28,502.3
1981-83	2,197.2	1,960.3	2,112.4	2,707.2	3,375.9	3,106.1	2,712.5	2,712.5	2,392.7	1,964.8	2,345.8	2,440.8	29,268.9
% Change	-6.6	-0.9	0.1	-6.6	-13.8	-12.2	-11.9	-0.6	3.3	3.0	11.0	15.4	-2.6
Commercial													
1982-83	1,805.8	1,673.0	1,624.5	1,743.6	1,838.6	1,778.8	1,739.6	1,661.4	1,604.0	1,758.9	2,047.1	2,125.4	21,400.7
1981-82	1,849.5	1,621.2	1,581.2	1,733.3	1,955.4	1,872.6	1,781.2	1,666.8	1,632.7	1,770.5	1,925.7	1,946.0	21,336.1
% Change	-2.4	3.2	2.7	0.6	-6.0	-5.0	-2.3	-0.3	-1.8	-.7	6.3	9.2	0.3
Industrial													
1982-83	3,107.5	3,014.8	2,910.7	2,779.2	2,921.2	3,102.7	3,301.5	3,201.3	3,342.5	3,374.8	3,280.9	3,542.1	37,878.2
1981-82	3,843.9	3,875.3	3,617.7	3,236.0	3,197.7	3,285.7	3,428.8	3,228.9	3,217.5	3,295.3	3,075.7	3,196.4	40,498.9
% Change	-19.2	-22.2	-19.5	-14.1	-8.6	-5.6	-3.7	-0.9	3.9	2.4	6.7	10.8	-6.5
Other													
1982-83	395.0	424.7	441.4	469.2	487.2	451.5	450.6	399.4	386.0	404.8	410.2	437.6	5,157.6
1981-83	408.3	421.1	447.5	490.7	507.0	499.6	491.6	438.8	408.8	423.5	399.1	396.7	5,332.7
% Change	-3.3	0.9	-1.4	-4.3	-3.9	-9.6	-8.3	-9.0	-5.6	-4.4	2.8	10.3	-3.3
Total													
1982-83	7,360.5	7,055.9	7,090.5	7,519.4	8,156.8	8,058.6	7,882.2	7,140.4	7,349.4	7,562.3	8,341.4	8,922.8	92,440.2
1981-82	8,298.4	7,887.9	7,758.8	8,167.2	9,036.0	8,764.0	8,414.1	7,727.2	7,212.2	7,454.5	7,746.3	7,980.0	96,436.6
% Change	-11.3	-10.4	-8.6	-7.9	-9.7	-8.0	-6.3	-7.6	1.9	1.5	7.7	11.8	-4.2
Customers(000)													
Residential	3,452.0	3,454.6	3,459.3	3,464.7	3,469.8	3,473.3	3,474.3	3,474.6		3,469.5	3,466.7	3,467.6	
Commercial	354.0	354.2	354.4	354.4	354.4	354.5	354.8	355.8	Not	356.1	356.1	356.2	
Industrial	24.5	24.6	24.6	24.6	24.6	24.7	24.8	24.8	Available	24.8	24.8	24.7	
Total	3,830.6	3,833.0	3,838.3	3,843.8	3,848.8	3,852.5	3,853.9	3,855.2		3,850.3	3,847.6	3,878.6	

Note: (1) Percentage change is from the same period of the previous year (1981-82).
(2) Excludes sales to other utilities.
(3) Figures may not add to exact totals because of independent rounding.
(4) Figures reported include CG&E, CEI, C&SOE, OP&L, Monongahela Power, Ohio Edison, Ohio Power and Toledo Edison.

Source: Ohio Electric Utility Institute's Monthly Summaries.



SOURCE: OHIO DIVISION OF ENERGY



SOURCE: OHIO DIVISION OF ENERGY.

Table 7-A. Ohio Electric Utilities' Projected Deliveries, Consumption, and Stocks of Coal for Electricity Generation, 1983-1984, (1000 Short Tons)

	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.
Allegheny Power System												
Deliveries	1,343.0	1,343.0	1,277.9	1,277.9	1,277.9	1,277.9	1,277.9	1,277.9	1,277.9	1,277.9	1,277.9	1,277.9
Consumption	1,291.6	1,395.0	1,362.4	1,271.1	1,331.4	1,197.6	1,233.7	1,193.3	1,291.4	1,331.5	1,184.8	1,319.8
Stocks	3,314.0	3,262.0	3,177.0	3,184.2	3,130.7	3,211.0	3,255.2	3,339.8	3,326.4	3,272.8	3,365.9	3,324.0
American Electric Power												
Deliveries	3,200.0	3,314.0	3,461.0	3,455.0	3,438.0	3,311.0	3,532.0	2,880.0	2,860.0	3,572.0	3,303.0	3,615.0
Consumption	2,822.0	3,069.0	3,519.0	3,328.0	3,333.0	2,820.0	2,610.0	3,077.0	3,134.0	3,187.0	2,881.0	2,695.0
Stocks	11,267.0	11,512.0	11,454.0	11,581.0	11,686.0	12,177.0	13,099.0	12,902.0	12,628.0	13,013.0	13,435.0	14,355.0
Cincinnati Gas & Electric												
Deliveries	600.0	600.0	563.5	503.1	535.7	478.9	467.6	509.3	607.4	629.7	584.7	100.0
Consumption	515.9	585.1	523.5	463.1	495.7	438.9	427.6	469.3	537.4	569.7	524.7	482.8
Stocks	1,284.1	1,299.0	1,339.0	1,379.0	1,419.0	1,459.0	1,499.0	1,539.0	1,609.0	1,669.0	1,729.0	1,346.2
Cleveland Electric Illuminating												
Deliveries	415.9	457.7	504.0	479.4	511.2	448.9	510.0	519.7	535.8	615.0	580.0	182.8
Consumption	415.9	457.7	504.0	479.4	511.2	448.9	461.0	472.7	488.8	568.0	533.0	532.8
Stocks	75.1	947.4	947.4	947.4	947.4	947.4	996.4	1,043.4	1,090.4	1,137.4	1,184.4	834.4
Dayton Power & Light												
Deliveries	673.0	635.0	657.0	612.0	775.0	735.0	706.0	718.0	366.0	736.0	33.0	168.0
Consumption	562.0	641.0	674.0	618.0	545.0	542.0	570.0	574.0	578.0	577.0	474.0	514.0
Stocks	1,447.0	1,441.0	1,425.0	1,419.0	1,647.0	1,840.0	1,976.0	2,120.0	1,908.0	2,068.0	1,628.0	1,282.0
Ohio Edison System												
Deliveries	802.7	868.5	1,033.9	922.6	890.1	883.0	912.2	979.4	1,048.2	1,080.5	985.4	795.4
Consumption	809.2	846.7	1,001.8	866.6	843.6	775.9	788.7	870.4	925.1	1,010.0	808.6	880.4
Stocks	2,270.6	2,292.3	2,324.3	2,380.4	2,426.9	2,533.9	2,657.4	2,766.5	2,889.5	2,960.0	3,136.8	3,051.7
Ohio Valley Electric Corp.												
Deliveries	545.0	569.0	577.0	526.0	549.0	553.0	588.0	552.0	615.0	619.0	554.0	530.0
Consumption	567.0	591.0	600.0	548.0	571.0	576.0	610.0	574.0	638.0	641.0	576.0	553.0
Stocks	1,476.0	1,453.0	1,431.0	1,409.0	1,386.0	1,364.0	1,342.0	1,319.0	1,297.0	1,275.0	1,252.0	1,230.0
Toledo Edison Co.												
Deliveries	165.0	150.0	184.0	174.0	166.0	142.0	135.0	144.0	144.0	242.0	232.0	233.0
Consumption	153.0	162.0	184.0	174.0	166.0	142.0	135.0	144.0	144.0	242.0	232.0	233.0
Stocks	332.0	320.0	320.0	320.0	320.0	320.0	320.0	320.0	320.0	320.0	320.0	320.0

Source: ODOE Form SE-3A.

Table 7 B Ohio Electric Utilities' Projected Deliveries, Consumption, and Stocks of Oil for Electricity Consumption, 1983-1984 (000s Bbls.)

	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sep.	Oct.
Allegheny Power System												
Deliveries	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Consumption	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Stocks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
American Electric Power												
Deliveries	44.0	50.0	53.0	52.0	43.0	47.0	45.0	44.0	47.0	50.0	40.0	40.0
Consumption	44.0	50.0	53.0	52.0	43.0	47.0	45.0	44.0	47.0	50.0	40.0	40.0
Stocks	199.0	199.0	199.0	199.0	199.0	199.0	199.0	199.0	199.0	199.0	199.0	199.0
Cincinnati Gas & Electric												
Deliveries	8.0	8.0	8.0	16.0	8.0	16.0	8.0	16.0	8.0	16.0	8.0	16.0
Consumption	6.6	10.7	5.9	9.4	9.6	17.6	8.7	13.2	12.1	12.6	8.1	15.6
Stocks	61.4	58.7	60.8	67.4	65.8	64.2	63.5	66.3	62.2	65.6	65.5	65.9
Cleveland Electric Illuminating												
Deliveries	42.0	27.3	11.9	35.9	34.1	10.2	38.0	10.7	18.4	38.6	32.0	9.9
Consumption	42.0	27.3	11.9	35.9	34.1	10.2	38.0	10.7	18.4	38.6	32.0	9.9
Stocks	75.1	75.1	75.1	75.1	75.1	75.1	75.1	75.1	75.1	75.1	75.1	75.1
Dayton Power and Light												
Deliveries	2.0	2.0	2.0	2.0	142.0	2.0	2.0	2.0	2.0	2.0	29.0	2.0
Consumption	9.0	28.0	51.0	45.0	11.0	6.0	4.0	6.0	7.0	7.0	9.0	12.0
Stocks	396.0	370.0	322.0	278.0	410.0	406.0	404.0	400.0	395.0	390.0	410.0	401.0
Ohio Edison												
Deliveries	0.0	8.2	7.1	5.0	8.5	4.5	1.9	6.5	5.0	4.4	6.4	6.5
Consumption	0.0	8.2	7.1	5.0	8.5	4.5	1.9	6.5	5.0	4.4	6.4	6.5
Stocks	40.3	40.3	40.3	40.3	40.3	40.0	40.3	40.3	40.3	40.3	40.3	40.3
Ohio Valley Electric Corp.												
Deliveries	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
Consumption	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
Stocks	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Toledo Edison												
Deliveries	354.0	364.0	158.0	231.0	274.0	152.0	106.0	139.0	159.0	323.0	332.0	125.0
Consumption	416.0	364.0	158.0	231.0	274.0	152.0	106.0	139.0	159.0	323.0	332.0	125.0
Stocks	990.0	990.0	990.0	990.0	990.0	990.0	990.0	990.0	990.0	990.0	990.0	990.0

Source: ODOE Form SE-3A.

Table 7.4 [illegible] (Projected Forecast, Cost Assessment, and Inventory Model)
(November 1983) (Dollars 1984)

ALLEGHENY POWER SYSTEM

	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	TOTAL
DEMAND FORECAST (GWH)	2592.2	2885.9	3213.3	2755.1	2783.5	2481.6	2532.8	2519.4	2689.4	2692.3	2589.8	2669.9	32324.3
EST DEMAND GEN BY COAL	2877.3	3201.4	3566.7	3058.2	3089.7	2754.6	2810.5	2790.9	2896.4	3176.9	2961.6	3149.6	36338.7
EST DEMAND GEN BY OIL	2.6	2.9	0.0	0.0	0.0	0.0	2.5	0.0	0.0	2.7	0.0	2.7	13.4
PROJ DAILY CONSUMPTION													
COAL (KTONS)	39.51	42.46	47.28	44.88	40.95	37.73	37.25	38.23	38.39	42.11	40.56	41.68	
OIL (KBBL)	0.22	0.24	0.0	0.0	0.0	0.0	0.21	0.0	0.0	0.22	0.0	0.22	
COAL DELIVERIES (KTONS)	1343.0	1343.0	1277.9	1277.9	1277.9	1277.9	1277.9	1277.9	1277.9	1277.9	1277.9	1277.9	15465.0
OIL DELIVERIES (KBBL)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
END OF MONTH STOCK													
COAL (KTONS)	3423.6	3458.3	3262.7	3284.0	3292.3	3438.4	3561.5	3692.6	3780.4	3752.9	3813.9	3799.7	
OIL (KBBL)	-6.7	-14.1	-14.1	-14.1	-14.1	-14.1	-20.7	-20.7	-20.7	-27.6	-27.6	-34.5	
NUMBER OF DAYS SUPPLY													
COAL	76.	77.	79.	85.	87.	91.	98.	92.	91.	91.	92.	91.	
OIL	-28.	53.	22.	-6.	-37.	-67.	-31.	-61.	92.	-94.	-124.	-155.	

AMERICAN ELECTRIC POWER SYSTEM

	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	TOTAL
DEMAND FORECAST (GWH)	6539.0	7315.0	8096.0	7367.0	7120.0	6235.0	6104.0	6193.0	6618.0	6796.0	6226.0	6482.0	81145.9
EST DEMAND GEN BY COAL	6918.4	8851.1	9148.5	7956.4	8045.6	7845.5	7630.0	7127.7	7544.5	7135.8	5317.0	5535.6	88256.1
EST DEMAND GEN BY OIL	0.0	0.0	8.1	0.0	7.1	0.0	6.1	0.0	0.0	0.0	0.0	0.0	21.3
PROJ DAILY CONSUMPTION													
COAL (KTONS)	107.72	133.37	137.85	132.73	121.23	109.70	114.97	110.98	113.68	107.52	82.79	83.41	
OIL (KBBL)	0.0	0.0	4.55	0.0	4.00	0.0	3.43	0.0	0.0	0.0	0.0	0.0	
COAL DELIVERIES (KTONS)	3200.0	3314.0	3461.0	3455.0	3438.0	3311.0	3532.0	2860.0	2860.0	3572.0	3303.0	3615.0	39941.0
OIL DELIVERIES (KBBL)	44.00	50.00	53.00	52.00	43.00	47.00	45.00	44.00	47.00	50.00	40.00	40.00	555.00
END OF MONTH STOCK													
COAL (KTONS)	[illegible]	[illegible]	9224.8	8963.4	8643.3	8663.3	8631.3	8187.0	7517.9	7756.8	8576.2	9605.5	
OIL (KBBL)	243.0	293.0	285.1	257.1	176.2	223.2	161.9	205.9	252.9	302.9	342.9	382.9	
NUMBER OF DAYS SUPPLY													
COAL	80.	76.	75.	78.	77.	77.	78.	78.	81.	93.	101.	115.	
OIL	116.	128.	113.	275.	244.	214.	183.	153.	122.	91.	61.	30.	

CINCINNATI GAS & ELECTRIC

	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	TOTAL
DEMAND FORECAST (GWH)	1191.4	1332.8	1417.4	1269.4	1293.5	1115.2	1208.9	1349.4	1550.9	1475.5	1236.2	1183.9	15523.9
EST DEMAND GEN BY COAL	966.6	1079.5	1148.1	1028.2	1099.5	947.9	1027.5	1192.7	1015.7	1032.8	865.3	828.7	12182.7
EST DEMAND GEN BY OIL	6.0	5.3	4.3	2.5	3.9	2.2	2.4	0.0	0.0	1.5	3.7	2.4	34.2
PROJ DAILY CONSUMPTION													
COAL (KTONS)	14.97	16.18	17.20	17.06	16.47	14.68	15.40	17.69	15.22	15.48	13.40	12.42	
OIL (KBBL)	0.77	0.67	0.53	0.35	0.49	0.29	0.30	0.0	0.0	0.18	0.48	0.30	
COAL DELIVERIES (KTONS)	600.0	600.0	563.5	503.1	535.7	478.9	467.6	0.0	607.4	629.7	584.7	100.0	5670.6
OIL DELIVERIES (KBBL)	8.00	8.00	8.00	16.00	8.00	16.00	8.00	16.00	8.00	16.00	8.00	16.00	136.00
END OF MONTH STOCK													
COAL (KTONS)	987.0	1085.6	1115.8	1141.3	1166.3	1206.9	1195.2	664.6	800.0	949.9	1132.7	847.7	
OIL (KBBL)	41.9	29.2	28.7	26.8	19.8	27.1	25.7	41.7	49.7	60.0	53.6	60.4	
NUMBER OF DAYS SUPPLY													
COAL	59.	64.	68.	73.	75.	74.	73.	43.	55.	74.	91.	68.	
OIL	75.	65.	50.	71.	131.	148.	141.	165.	161.	184.	181.	204.	

CLEVELAND ELECTRIC ILLUMINATING COMPANY

	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	TOTAL
DEMAND FORECAST (GWH)	1443.0	1562.0	1663.0	1536.0	1583.0	1429.0	1502.0	1535.0	1602.0	1626.0	1475.0	1541.0	18497.0
EST DEMAND GEN BY COAL	937.9	1015.3	1080.9	998.4	1028.9	857.4	901.2	921.0	961.2	975.6	885.0	924.6	11487.5
EST DEMAND GEN BY OIL	28.9	14.1	6.7	12.3	12.7	4.3	7.5	6.1	3.2	4.9	4.4	0.0	105.0
PROJ DAILY CONSUMPTION													
COAL (KTONS)	13.45	14.09	15.00	15.34	14.28	12.30	12.51	13.21	13.34	13.54	12.69	12.83	
OIL (KBBL)	2.13	1.01	0.48	0.97	0.91	0.32	0.54	0.45	0.23	0.35	0.33	0.0	
COAL DELIVERIES (KTONS)	415.9	457.7	504.0	479.4	511.2	448.9	510.0	519.7	535.8	615.0	580.0	182.8	5760.4
OIL DELIVERIES (KBBL)	41.99	27.34	11.86	35.86	34.14	10.25	38.05	10.74	18.41	38.62	32.00	9.91	309.17
END OF MONTH STOCK													
COAL (KTONS)	959.7	980.5	1019.4	1069.2	1137.6	1217.6	1339.8	1463.2	1585.4	1780.6	1979.8	1764.7	
OIL (KBBL)	53.1	49.3	46.4	55.8	61.1	61.8	83.2	80.3	91.6	119.4	141.6	151.5	
NUMBER OF DAYS SUPPLY													
COAL	66.	65.	71.	82.	90.	93.	101.	111.	122.	139.	154.	138.	
OIL	69.	67.	49.	94.	163.	214.	183.	153.	122.	91.	61.	30.	

Table 7.4 [illegible] (November 1983 - October 1984)

DAYTON POWER & LIGHT

	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	TOTAL
DEMAND FORECAST (GWH)	912.3	1008.9	1102.5	991.5	963.2	835.5	824.8	835.0	956.7	958.5	856.2	893.7	11156.6
EST DEMAND GEN BY COAL	994.4	1099.7	1157.6	1061.8	1049.8	910.7	956.8	936.1	927.7	1787.3	1528.4	678.5	12997.8
EST DEMAND GEN BY OIL	25.5	51.3	30.9	24.8	15.4	10.8	9.1	8.8	21.8	11.5	10.8	10.7	231.5
PROJ DAILY CONSUMPTION													
COAL (KTONS)	15.17	16.24	17.09	17.02	15.58	13.98	14.13	14.29	13.78	25.21	21.28	9.98	
OIL (KBBL)	2.37	2.81	2.78	2.47	1.39	0.93	0.82	0.81	1.96	1.02	1.75	0.96	
COAL DELIVERIES (KTONS)	673.0	635.0	657.0	612.0	775.0	735.0	706.0	718.0	366.0	736.0	33.0	168.0	6814.0
OIL DELIVERIES (KBBL)	2.00	2.00	2.00	2.00	142.00	2.00	2.00	2.00	2.00	2.00	29.00	2.00	191.00
END OF MONTH STOCK													
COAL (KTONS)	1553.8	1685.3	1812.4	1947.8	2242.2	2560.3	2828.2	3117.6	3058.9	3013.3	2350.2	2211.4	
OIL (KBBL)	333.8	248.6	164.6	97.5	196.6	170.6	147.3	125.0	66.3	36.5	33.2	-14.7	
NUMBER OF DAYS SUPPLY													
COAL	93.	104.	120.	135.	143.	144.	172.	215.	221.	264.	237.	223.	
OIL	176.	148.	119.	94.	168.	139.	109.	81.	51.	21.	14.	-15.	

OHIO EDISON SYSTEM

	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	TOTAL
DEMAND FORECAST (GWH)	1952.7	2064.6	2236.0	2027.5	2042.0	1834.7	1849.6	1882.9	2055.7	2074.7	1913.3	1988.5	23922.2
EST DEMAND GEN BY COAL	1464.5	1651.7	1900.6	1619.2	1327.3	1108.8	1202.2	1242.7	1069.8	829.9	861.8	994.2	15063.2
EST DEMAND GEN BY OIL	5.9	6.2	4.5	4.1	6.1	1.8	3.7	1.9	4.1	2.1	1.9	6.8	48.2
PROJ DAILY CONSUMPTION													
COAL (KTONS)	23.62	25.78	29.67	24.53	20.72	17.76	18.77	20.04	16.69	12.95	13.89	15.52	
OIL (KBBL)	0.42	0.43	0.31	0.31	0.43	0.13	0.26	0.14	0.29	0.15	0.14	0.42	
COAL DELIVERIES (KTONS)	802.7	868.5	1033.9	922.6	890.1	883.0	912.2	979.4	1048.2	1060.5	985.4	795.3	11201.7
OIL DELIVERIES (KBBL)	0.0	8.17	7.89	5.02	8.48	4.50	1.88	6.55	4.95	4.43	6.43	6.50	64.80
END OF MONTH STOCK													
COAL (KTONS)	2364.6	2433.9	2568.0	2785.8	3031.6	3381.9	3712.4	4090.4	4621.3	5100.2	5869.0	6183.2	
OIL (KBBL)	27.6	22.3	19.7	16.0	11.1	11.7	5.5	8.0	4.0	4.0	6.2	-0.2	
NUMBER OF DAYS SUPPLY													
COAL	88.	108.	125.	149.	182.	209.	236.	270	306.	345	378.	398	
OIL	76.	68.	54.	51.	58.	58.	35	28	23.	29	15.	0	

	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
DEMAND FORECAST (GWH)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EST DEMAND GEN BY COAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EST DEMAND GEN BY OIL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
PROJ DAILY CONSUMPTION													
COAL (KTONS)	19.02	20.81	22.27	18.88	17.68	18.47	18.31	18.17	18.24	19.41	18.53	17.22	
OIL (KBBL)	0.09	0.09	0.0	0.0	0.09	0.09	0.19	0.0	0.09	0.09	0.0	0.08	
COAL DELIVERIES (KTONS)	545.0	569.0	577.0	526.0	549.0	553.0	588.0	552.0	615.0	619.0	554.0	530.0	6777.0
OIL DELIVERIES (KBBL)	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	20.40
END OF MONTH STOCK													
COAL (KTONS)	1472.5	1395.7	1282.2	1279.7	1280.7	1279.4	1299.8	1306.8	1356.3	1373.0	1371.1	1367.3	
OIL (KBBL)	5.8	3.9	5.6	7.3	6.2	5.2	1.1	2.8	1.6	0.4	2.1	1.2	
NUMBER OF DAYS SUPPLY													
COAL	69.	69.	70.	71.	70.	70.	71.	70.	73.	77.	80.	79.	
OIL	115.	102.	89.	71.	49.	28.	62.	38.	17.	35.	25.	14.	

TOLEDO EDISON

	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	TOTAL
DEMAND FORECAST (GWH)	644.3	665.9	680.5	643.2	698.1	634.6	618.6	627.2	658.1	666.6	627.2	627.2	7783.5
EST DEMAND GEN BY COAL	384.6	407.5	373.6	368.5	412.0	389.6	314.9	279.1	319.2	407.3	442.8	368.2	4567.4
EST DEMAND GEN BY OIL	308.2	111.9	111.6	115.8	149.1	129.5	102.7	124.2	47.4	54.8	45.2	56.4	1155.9
PROJ DAILY CONSUMPTION													
COAL (KTONS)	5.19	5.32	4.88	5.62	5.38	5.26	4.11	3.77	4.17	5.32	5.97	5.07	
OIL (KBBL)	9.41	9.41	9.39	10.78	12.54	11.25	8.64	10.79	3.98	4.54	3.92	4.75	
COAL DELIVERIES (KTONS)	165.0	150.0	184.0	174.0	166.0	142.0	135.0	144.0	144.0	242.0	232.0	233.0	2111.0
OIL DELIVERIES (KBBL)	356.00	364.00	158.00	231.00	274.00	152.00	106.00	139.00	159.00	121.00	332.00	125.00	2717.00
END OF MONTH STOCK													
COAL (KTONS)	329.3	314.3	347.1	363.8	363.1	347.3	354.9	185.9	480.7	477.8	518.6	606.4	
OIL (KBBL)	1123.8	1196.2	1063.2	932.4	877.8	692.3	538.6	365.8	581.3	563.5	777.8	755.6	
NUMBER OF DAYS SUPPLY													
COAL	64.	60.	61.	71.	82.	87.	82.	77.	72.	89.	105.	120.	
OIL	109.	109.	91.	92.	86.	86.	79.	83.	87.	124.	164.	159.	

III. NATURAL GAS

This section presents an overview and forecast of natural gas market conditions in Ohio. First, the distribution and supply system is described followed by an account of historical gas demand. Next a summary of utilities' forecasts and a presentation of the Ohio Division of Energy forecast provide a twelve month outlook. Finally, alternative fuel use is briefly discussed.

A quantitative analysis of historical gas demand patterns which provides the basis for forecasts of demand is referenced in Appendix B.

Distribution and Supply

Service shares of the gas distribution companies operating in Ohio are presented in Table 8 for the annual period September 1982 to August 1983. During this period, the four large distribution companies--Cincinnati Gas and Electric, Columbia Gas of Ohio, Dayton Power and Light, and East Ohio Gas--jointly distributed 93.22 percent of the reported natural gas requirements of the state. The four intermediate-sized companies--National Gas and Oil, Ohio Gas, River Gas, and West Ohio Gas--distributed an additional 4.83 percent. The remaining 1.95 percent of the reported natural gas requirements were distributed by 18 small utilities and two municipal utilities. The figures presented in Table 8 do not include self-help natural gas, which is gas produced by an industrial customer for their own use. Total

requirements of 731,459 MMCF reported in Table 8 represent a reduction of approximately 19 percent in the distribution of natural gas compared to the same period last year. The magnitude of the reduction is explained primarily by the severity of the recession of 1982, and the very mild 1982-83 heating season.

The major sources of supplies of natural gas to the state of Ohio are presented in Table 9, and the quantities supplied are shown graphically in Figure 6. From September 1982 through August 1983, the eight major gas distribution companies of Ohio, which together account for 98.05 percent of the reported natural gas distribution in the state, procured 717,224 MMCF of natural gas to meet Ohio's requirements. This represents a 19 percent decrease in the supplies of natural gas to Ohio compared to the same period in the previous twelve months.This decline reflects the reaction of Ohio's gas distribution companies to the declining natural gas requirements of residential, commercial, and especially industrial customers in Ohio.

Of the 717,224 MMCF total procurement, interstate gas purchases and synthetic natural gas (SNG) comprise 91.62 percent (See Table 9). Purchases of Ohio gas comprise the remaining 8.38 percent of the total. The 60,119 MMCF of Ohio production of natural gas purchased by the eight major gas utilities from September 1982 to August 1983 represents a 6.9 percent increase in their purchases of Ohio's product during the preceding annual period. This amount corresponds to approximately 43.3 percent of the state's total production of 138,391 MMCF in calendar year 1982.

Domestic interstate gas is the major source of supply for Ohio. Columbia Gas Transmission Corporation and Consolidated Gas Supply Corporation provided 67.56 percent of the natural gas supplied to the eight major Ohio gas distribution companies from September 1982 through August 1983. No liquified natural gas (LNG) imports were included in these supplies, nor are anticipated by either company as a source of supply for the 1983-84 heating season.

Historical Behavior of Sectoral Gas Requirements[1]

Although no new customer hookups were allowed from 1972 until the passage of the Natural Gas Policy Act in 1978, the number of residential customers in Ohio remained relatively constant during this period. Since 1979, the number of Ohio residential natural gas customers has been increasing annually. However, the weather sensitivity of residential consumption, measured in terms of the change in the monthly volume of residential requirements as measured in MMCF per degree day per month, has generally been declining since the mid-seventies in the service areas of the four major Ohio natural gas utilities (See Table 10). Hence, residential sector demand has been declining. This fact is a reflection of the effectiveness of residential conservation measures implemented in Ohio. These measures, in turn, are a response to increasing natural gas prices. (See Tables 11 and 12).

---

[1] See Appendix B for a quantitative analysis of historical natural gas requirements in Ohio.

As a result of reduction in interstate gas supplies during the mid-seventies, base allocations of lower priority industrial and commercial customers were curtailed between 1973-1977. This led to conservation in the commercial and industrial sectors, and to some fuel switching in the industrial sector. A reduced level of statewide economic activity has also contributed to declining trends of demand in these two sectors, as well as a continuing increase in natural gas prices from 1972 onward.

There is no doubt that the major incentive for conservation in all sectors of the economy is the steep increase in energy costs. Between 1972 and 1981, imported oil costs have risen eight-fold, and natural gas prices have risen four-fold (See Tables 11 and 12). These increases have been far ahead of any increases in real per-capita income.

Historical Monthly Sectoral Requirements

The monthly time series behavior of residential, commercial, industrial, and total natural gas requirements in Ohio from January 1970 through August 1983, is displayed in Figures 7 through 10. The seasonal variation in residential and commercial requirements can easily be discerned from these illustrations. Natural gas usage in all sectors peaks during the heating season, and falls off during the cooling season. The contrast between the natural gas consumption levels during the heating and non-heating seasons has increased over the past two years. The dramatic effect of curtailment enforced on the industrial sector during the 1976-77 heating season is shown in Figure 9.

Historical Annual Sectoral Requirements

Figures 11 through 16 present the annual sectoral natural gas consumption patterns observed in Ohio from 1960 to 1982. Figure 17 illustrates the respective shares of residential, commercial, industrial, and the combined electric utility and transportation ("other") sectors in the Ohio total. The historical trend of consumption shows a gradual increase from 1960 to 1972, followed by a gradual decrease from 1972 to date. The downward trend can be explained by numerous factors, including:

1. A ban on new customer hookups from 1972 to 1978 in response to the dwindling supply.
2. Curtailments in industrial requirements from 1973 to 1977.
3. Conservation induced by public and private programs and by the rising cost of natural gas.
4. A weak statewide economic condition reflecting the adverse impacts of worldwide economic shocks of the 1970's on the structure of the economy in the United States and in Ohio.

The economic shocks mentioned in point 4 above include:

a) the breakdown of the prevailing international monetary system in 1971 and the subsequent 100 percent devaluation in U.S. currency by 1973;

b) quadrupling of crude oil price by OPEC in 1973;

c) the winding down and termination of more than a decade of U.S. overseas military engagement in southeast Asia;

d) the doubling of already quadrupled crude oil prices in 1978;

e) three recessions of increasing severity and duration in 1971, 1974-75, and 1980 to (roughly) 1982.

The impact of such severe, permanent, and widespread alterations in the general economic environment has drastically altered the structure of costs, prices, incomes, and production relations worldwide. The initial impacts of the shocks in question on the economy of Ohio have been rather adverse. The continued downward trend in sectoral energy consumption in general, and natural gas consumption in particular, reflects not only conservation considerations alone, but may also reflect a permanent loss in industrial capacity, especially in the manufacturing industries.

Utility Forecasts: Twelve Month Outlook

On the basis of utilities' projected natural gas supplies, and the historically established trends in natural gas requirements, the outlook for the next 12 months indicates no supply shortages under normal or 10 percent colder than normal weather conditions, concurrent with projected price increases and a moderate economic recovery.

Aggregate supply and demand projections of the eight major utilities, as presented in Table 13 and Figure 18, indicate a 0.1 percent annual surplus of natural gas supplies over requirements. All eight utilities project supply to be in excess of requirements during the 1983-84 heating season. Supply and demand projections of the individual utilities, as submitted in their "Monthly Reports of Supply and Demand of Natural Gas," are summarized in Appendix B, Table B-9.

Because natural gas is the primary source of space heating for the residential and commercial sectors, over 60 percent of the natural gas consumed in Ohio is used during the heating season. Table 14 shows the actual aggregate monthly sectoral requirements for the eight major utilities from September 1982 through August 1983, along with the utilities' consolidated projections for the September 1983 through August 1984 period. The forecast shows increases in demand in all sectors. Figure 19 is a graphic representation of the utilities' consolidated sectoral projections for the forecast period. Overall, the forecast total annual gas requirement shows an increase of 7.8 percent relative to the same twelve month period last year.

Actual and forecast aggregate supply of natural gas by source is displayed in Table 15. Delivered product from all pipeline sources is expected to increase 7.9 percent over the previous twelve month period. The majority of this supply, roughly 90 percent, will continue to come from out-of-state sources. Columbia Gas Transmission Corporation by far the largest state

supplier, is projected to supply 46.4 percent of natural gas demand.

The Ohio Division of Energy will be monitoring developments in the supplies and requirements of natural gas throughout the rest of the year and will take appropriate action if a critical situation develops. However, Ohio Division of Energy's current conclusion is that prevailing conditions portend no shortages or curtailments of natural gas during the 1983-84 heating season.

Ohio Division of Energy Independent Forecast

Methodology

The independent natural gas demand forecasts prepared by Ohio Division of Energy for the eight major gas utilities serving Ohio are based upon time series analyses of sectoral requirements for each individual month of the year, between January 1970 and August 1983, adjusted for long-term annual trends or severe climatic conditions.

Time series models, with adjustments, yield projections that possess statistical properties that are at least as accurate as alternative short-term forecasting techniques. They also offer the added flexibility of being able to produce updated forecasts every time the most recent actual monthly requirements are reported to Ohio Division of Energy. The utilization of an adjusted time series methodology is designed to provide a double check, thus reducing forecasting error for a more accurate and decisive diagnosis of energy requirements of the state.

Results and Outlook

The results obtained on the basis of the ODOE methodology for the 1983-84 heating season are presented in Tables 16 through 21. The summary results presented in Tables 16 and 17 indicate a potential deficiency of 0.1 percent in the case of a 10 percent colder than normal winter, which could be accounted for in the variation of the forecasting methods. The forecast for sectoral end-user requirements is presented in Table 17. From these projections it is concluded that the use of current supply or storage capacities of Ohio natural gas utilities would be necessary only if a more severe winter occurs.

Any unexpected changes in the short-term behavior of residential and commercial requirements would mainly be associated with variations in the severity of the heating season, and the rate of increase in natural gas prices. Given conservation efforts and increasing supplies of natural gas, dramatic changes in the long-term behavior of residential and commercial natural gas requirements are not anticipated in the near future. Long-term residential and commercial sector requirements are expected to stabilize near 1978 or 1979 levels as the economy fully recovers from the recession. Major climatic deviations, such as a repeat of the winter of 1976, may create temporary increases in residential or commercial demand, but sustained growth of natural gas consumption is not projected. Even if real per-capita incomes increase substantially, gas consumption is

expected to remain stable, since higher prices will discourage high levels of demand. The long-term effects of the recent recession, if any, should be discernible in the next one or two years.

Industrial sector demand is expected to continue its decline, primarily since industrial customers are switching to residual fuel oil as an economical energy source. Rapid increases in gas prices, coupled with stabilized oil prices, are bringing oil into the picture as a competitively priced fuel. Many industrial and large commercial firms are developing dual fuel capability (oil and gas) in order to respond to possible unforeseen price fluctuations. However, many small industrial and commercial firms, as well as residential customers, will not have fuel-switching capability. This will no doubt increase conservation efforts as gas prices continue to escalate.

Based upon a 10 percent colder than normal weather scenario, and accelerated economic recovery in the last quarter of 1983, Ohio Division of Energy forecasts an adequate gas supply combined with slightly increasing or stabilizing demand for the upcoming year.

ODOE's independent forecasts for the four major utilities are compared with each company's bi-annual forecast for the period from November 1983 through October 1984 in Appendix B, Tables B-1 through B-4. The Division's forecasts of sectoral end-use gas requirements for Ohio are presented in Appendix B, Tables B-5

through B-8. These have been adjusted for the long-term historical trends observed in sectoral natural gas requirements in the State. Finally, for comparison, Appendix B, Table B-9 displays twelve month forecasts produced monthly by each utility and reported to the Ohio Division of Energy.

Alternative Fuel Use Capability Profile

There have been no natural gas curtailments in Ohio since 1978, and neither Ohio gas utilities nor the gas pipeline companies project any curtailments for the November 1983 through October 1984 period. However, in the event of a projected shortage, it is anticipated that fuel-switching capability of industrial and large commercial users would be accelerated. Detailed emergency plans that describe strategies to respond to fuel supply shortfalls are on file at the Ohio Division of Energy.

Table 8. Total Natural Gas Requirements of All Commercial Utilities in Ohio, September 1982 through August 1983 (MMCF)

	(1) Sales to All End Users	(2) Storage (In)	Total Requirement (1+2)	Percent of Total Ohio Requirement
[illegible] Gas and Electric Co.	70,460	0	70,460	9.63
[illegible] Gas of [illegible]	237,878	0	237,878	32.52
[illegible] Power and Light Co.	47,726	0	47,726	6.52
[illegible] Ohio Gas Co.	263,028	62,864	325,892	44.55
[illegible] Gas and Oil Co.	13,495	1,262	14,757	2.02
[illegible] Gas Co.	5,734	336	6,070	0.83
[illegible] Gas Co.	3,719	0	3,719	0.51
[illegible] Ohio Gas Co.	10,724	0	10,724	1.47
Total Eight Major Utilities	652,764	64,462	717,226	98.05
Total Small Utilities	7,901	0	7,901	1.08
[illegible] Utilities	6,332	0	6,332	0.87
TOTAL ALL UTILITIES	666,997	64,462	731,459	100.00

Source: ODOD Form SG-2 and SG-4

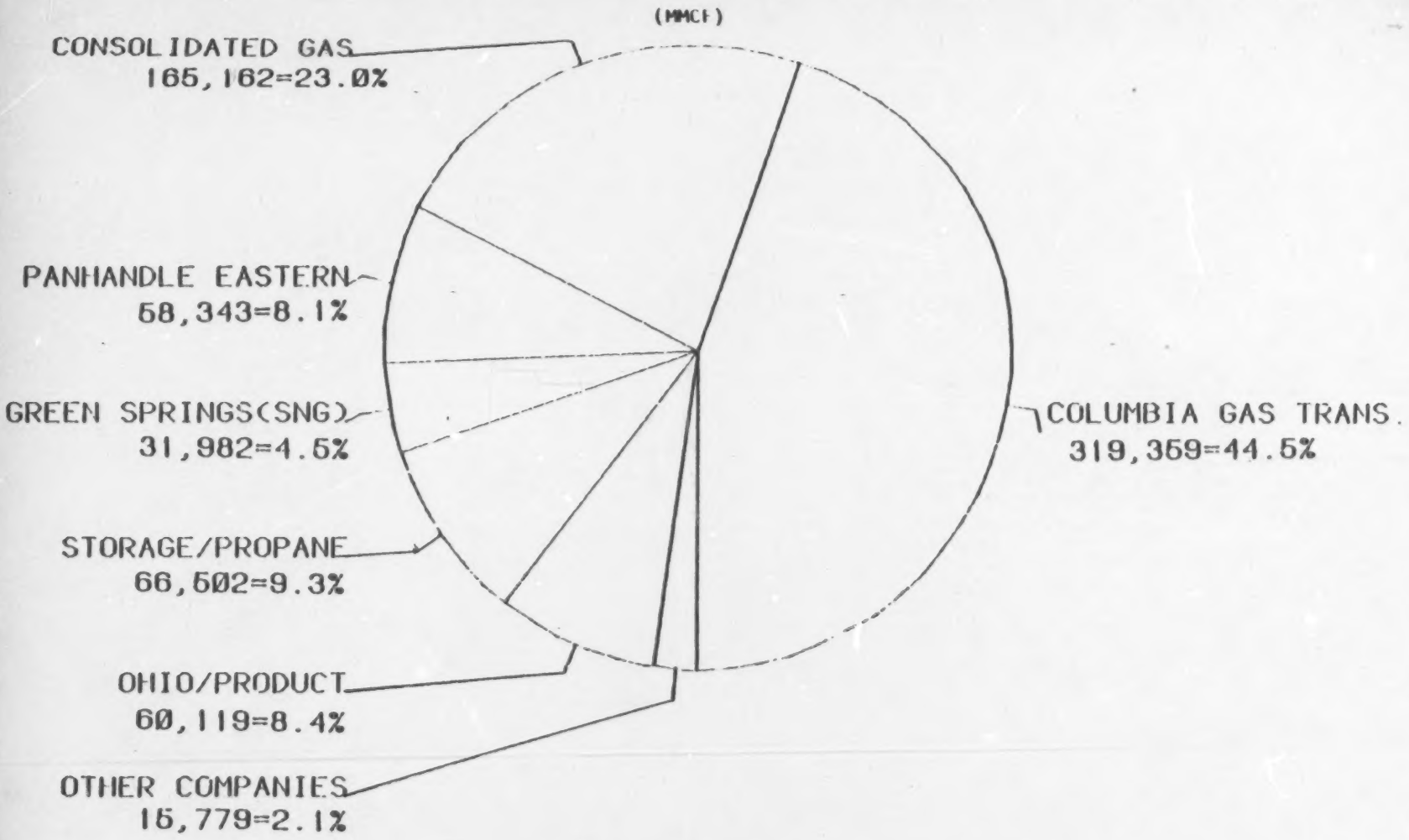
Table 9. Sources of Natural Gas Supplies to the Eight Major Gas Utilities, September 1982 through August 1983
(MMCF)

	Supply	Percent of Total	Rank
Columbia Gas Transmission Corp.	319,359	44.53	1
Consolidated Gas Supply Corp.	165,162	23.03	2
Lawrenceburg Gas	5,605	0.78	8
Michigan/Wisconsin Pipeline Co.	1,461	0.20	9
Panhandle Eastern Pipeline Co.	58,343	8.14	5
Tennessee Gas Pipeline Co.	1,407	0.20	10
Texas Eastern Transmission Corp.	7,249	1.01	7
Texas Gas Transmission Corp.	231	0.03	11
Green Springs (SNG)	31,982	4.46	6
Storage/Propane[1]	66,502	9.27	3
Other	-196	-0.03	
Total SNG and Out-of-State	657,105	91.62	
Ohio Product	60,119	8.38	4
TOTAL	717,224		

Note: [1]Gas in storage represents a source during the period under consideration. Figure is elevated because Cincinnati Gas and Electric maintains propane in storage for peak-shaving.

Source: Ohio Division of Energy Form SG-2

FIG. 8 SOURCE OF NATURAL GAS SUPPLY TO THE EIGHT MAJOR OHIO GAS UTILITIES SEPTEMBER 1981 - AUGUST 1982



SOURCE: OHIO DIVISION OF ENERGY

Table 10. Weather Sensitivity of Residential Natural Gas Consumption in Ohio (1970-1982)

MMCF/Per Heating Degree-Day

Year	Cincinnati Gas and Electric	Columbia Gas	Dayton Power and Light	East Ohio Gas
1970	6.43	21.64	5.69	22.95
1971	6.96	24.04	6.04	23.57
1972	6.95	23.81	5.77	24.22
1973	6.78	23.68	5.72	23.04
1974	6.78	23.35	5.58	24.21
1975	6.83	22.73	5.61	24.34
1976	6.34	21.22	5.04	22.52
1977	5.15	18.95	4.79	20.44
1978	5.11	18.00	4.54	19.74
1979	5.10	18.48	4.53	20.68
1980	4.77	17.91	4.28	19.26
1981	4.82	17.45	4.22	18.73
1982	5.43	17.27	4.07	17.71

Source: Ohio State University Gas Model, monthly reports of four Ohio gas utilities and the Ohio Division of Energy.

Table 11. Ohio Natural Gas Prices in Current Dollars, 1970-1981
($ Per MMBtu)

Year	Residential	Commercial	Industrial
1970	0.84	0.73	0.52
1971	0.96	0.81	0.56
1972	1.02	0.86	0.62
1973	1.08	0.94	0.65
1974	1.23	1.07	0.85
1975	1.51	1.35	1.12
1976	1.79	1.63	1.43
1977	2.23	2.07	1.95
1978	2.43	2.24	2.05
1979	2.78	2.57	2.32
1980	3.45	3.23	2.97
1981	3.97	3.71	3.43
1982	4.96	4.65	4.32
1983[a]	5.41	5.04	4.66

Source: American Gas Association, Gas Facts, and the Ohio Division of Energy.

[a]1983 reported prices are first six month average for U.S. Census Region 2 which includes Ohio, Michigan, Wisconsin and Indiana.

Table 12. Ohio Natural Gas Prices in Constant Dollars, 1970-1981
(Dollars per MMBtu)
(1967 = 100

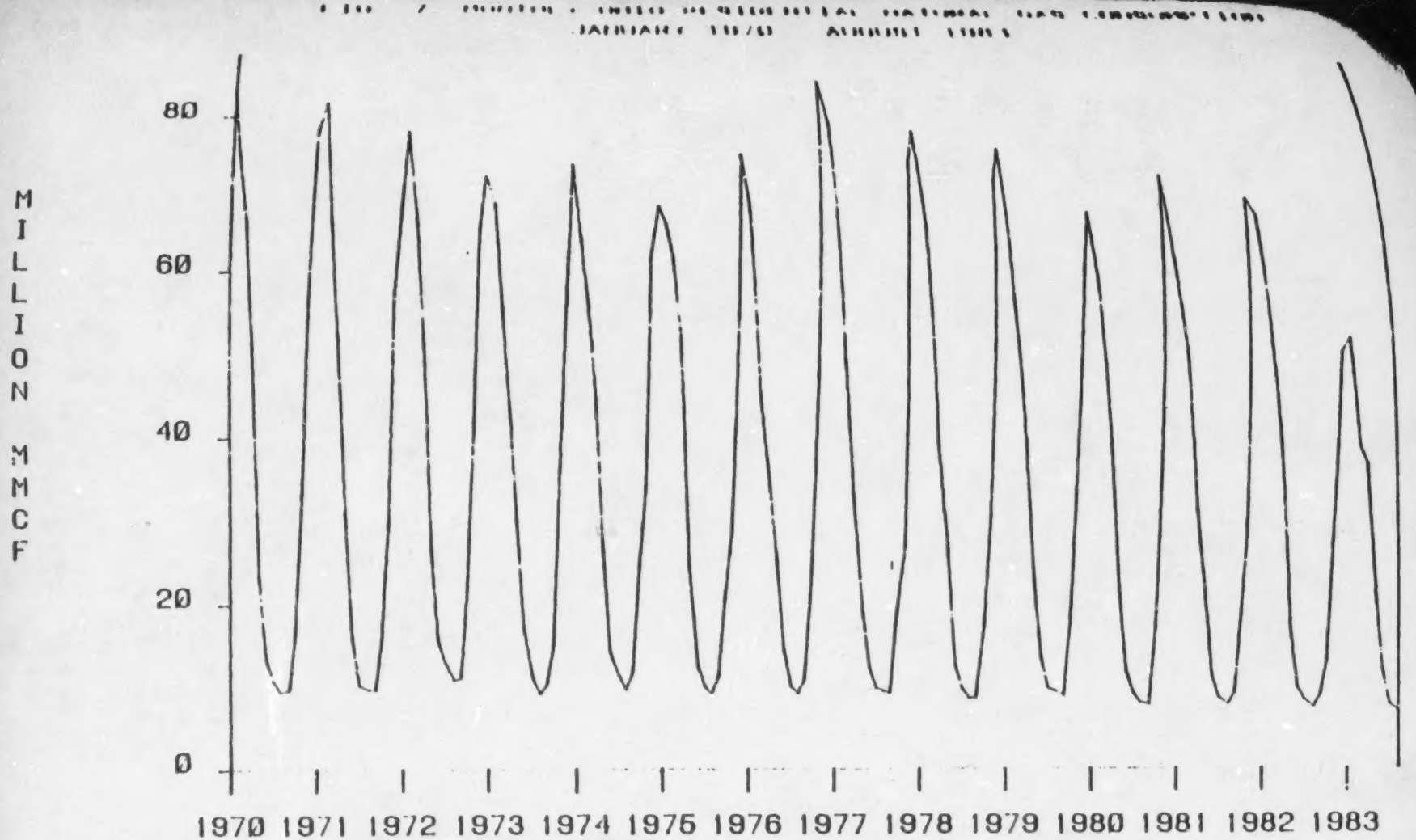
Year	Residential	Commercial	Industrial
1970	0.72	0.63	0.45
1971	0.78	0.67	0.47
1972	0.81	0.69	0.49
1973	0.81	0.71	0.46
1974	0.83	0.72	0.58
1975	0.94	0.84	0.69
1976	1.05	0.96	0.84
1977	1.23	1.14	1.07
1978	1.24	1.15	1.05
1979	1.28	1.18	1.07
1979	1.28	1.18	1.07
1980	1.40	1.31	1.20
1981	1.42	1.34	1.25
1982[a]	1.69	1.60	1.50
1983[b]	1.80	1.69	1.58

Note: All prices are stated in terms of 1967 dollars.

Source: American Gas Association, Gas Facts, 1981, U.S. Department of Commerce, Survey of Current Business, April 1982.

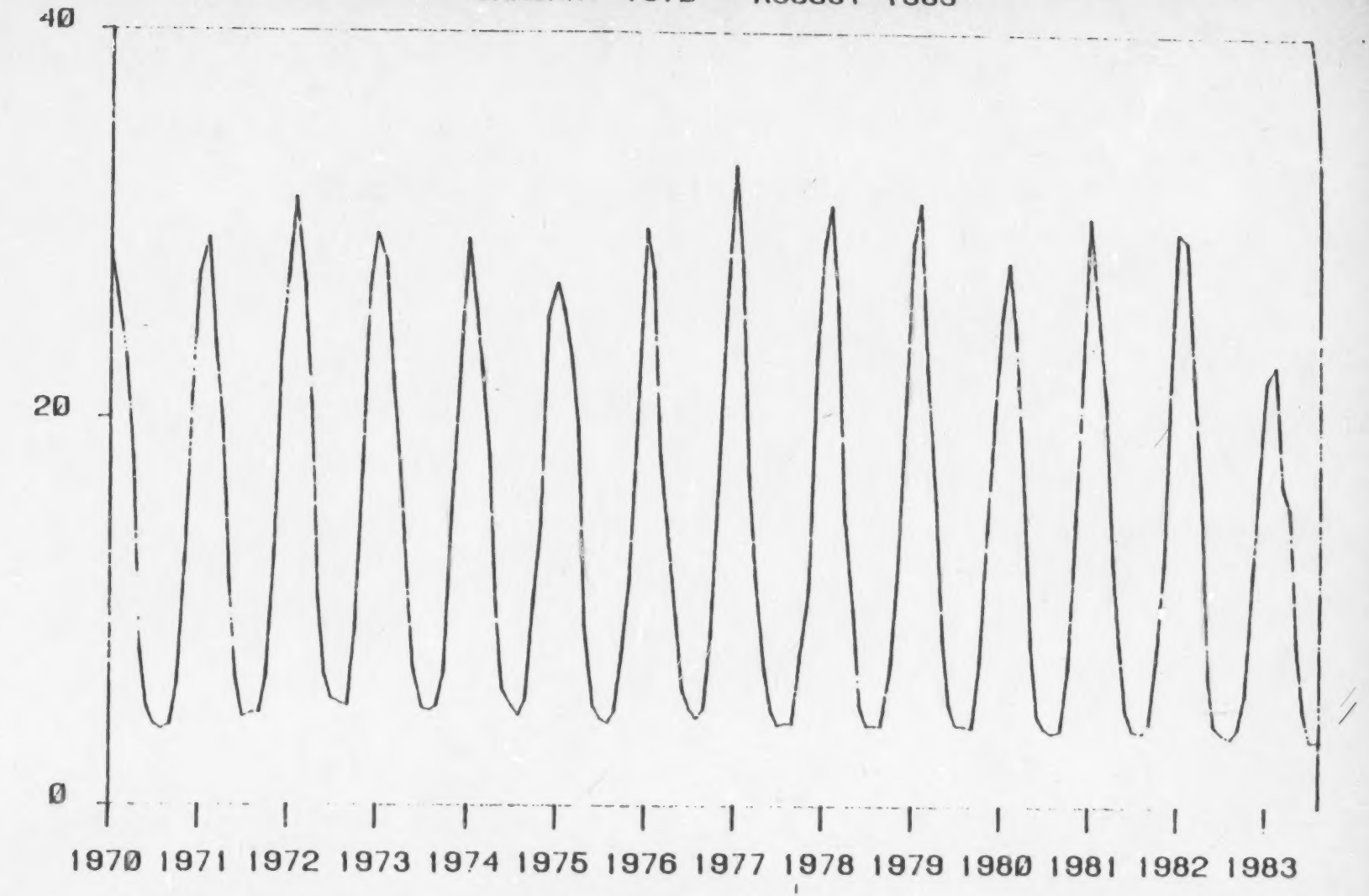
[a]Both 1982 and 1983 constant dollars are derived by using Consumer Price Indexes provided by the U.S. Department of Commerce.

[b]1983 preliminary data aggregated for U.S. Region 2.



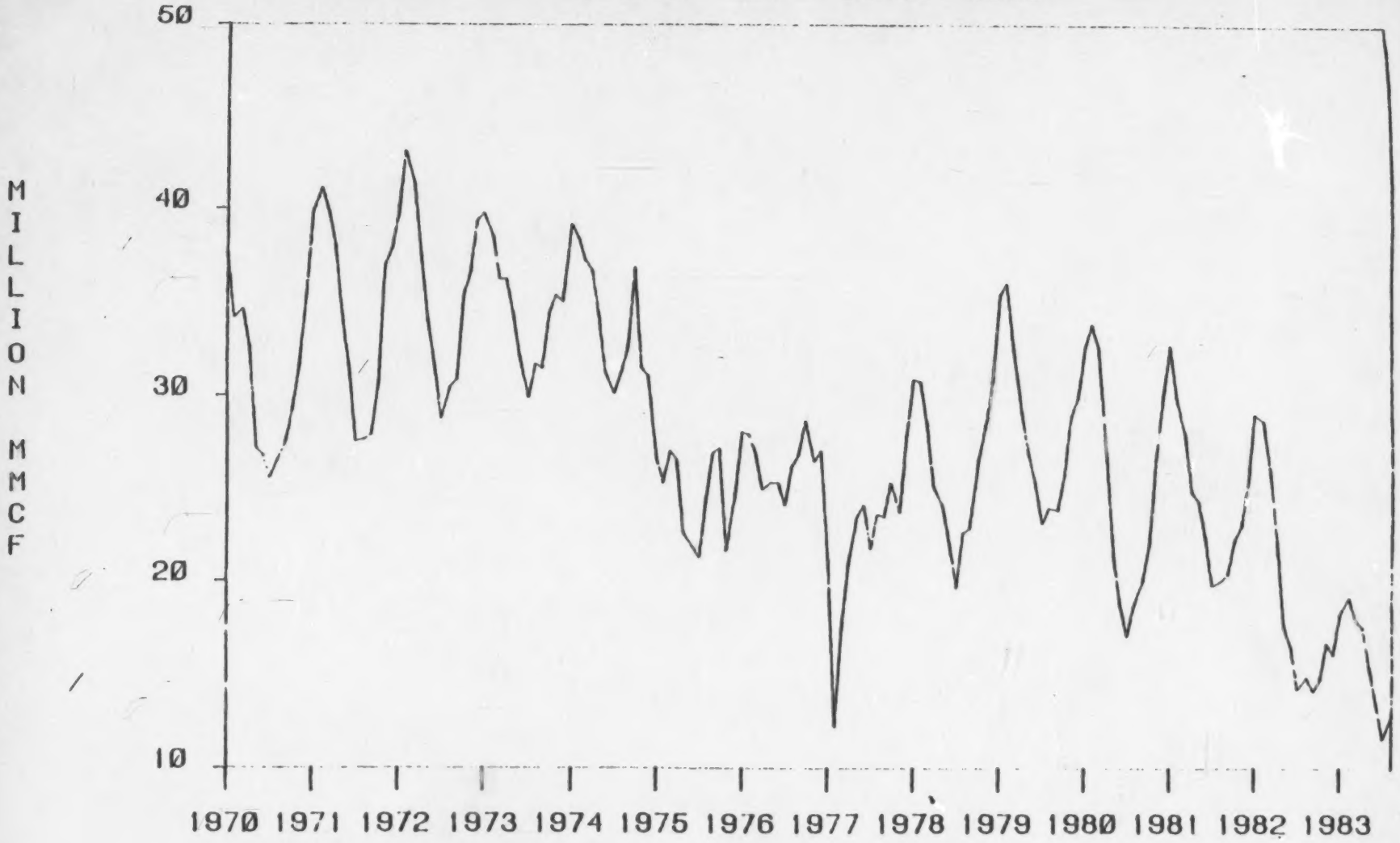
SOURCE: OHIO DIVISION OF ENERGY

FIG. 8. MONTHLY OHIO COMMERCIAL NATURAL GAS CONSUMPTION
JANUARY 1970 - AUGUST 1983



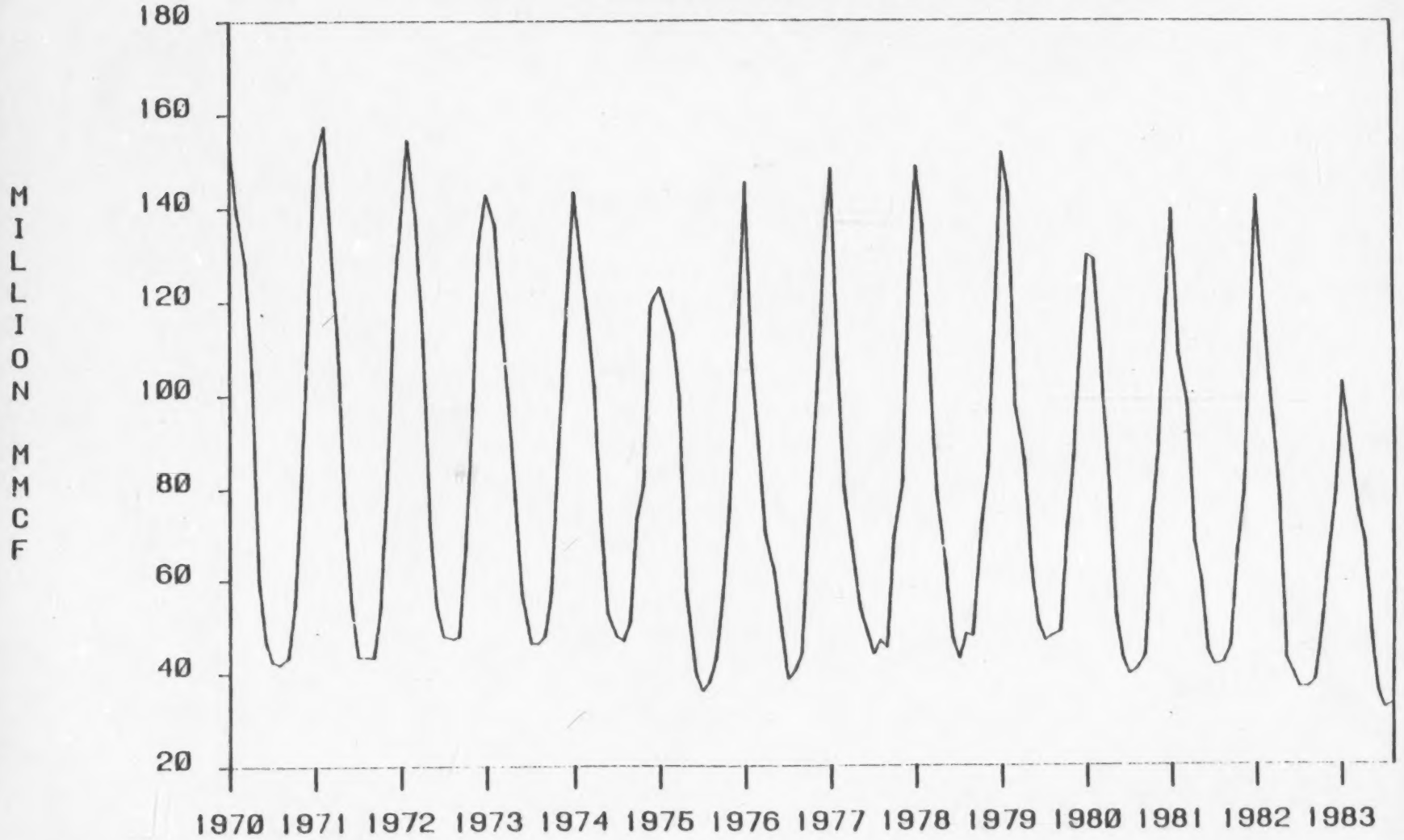
SOURCE: OHIO DIVISION OF ENERGY

FIG. 9. MONTHLY OHIO INDUSTRIAL NATURAL GAS CONSUMPTION
JANUARY 1970 - AUGUST 1983



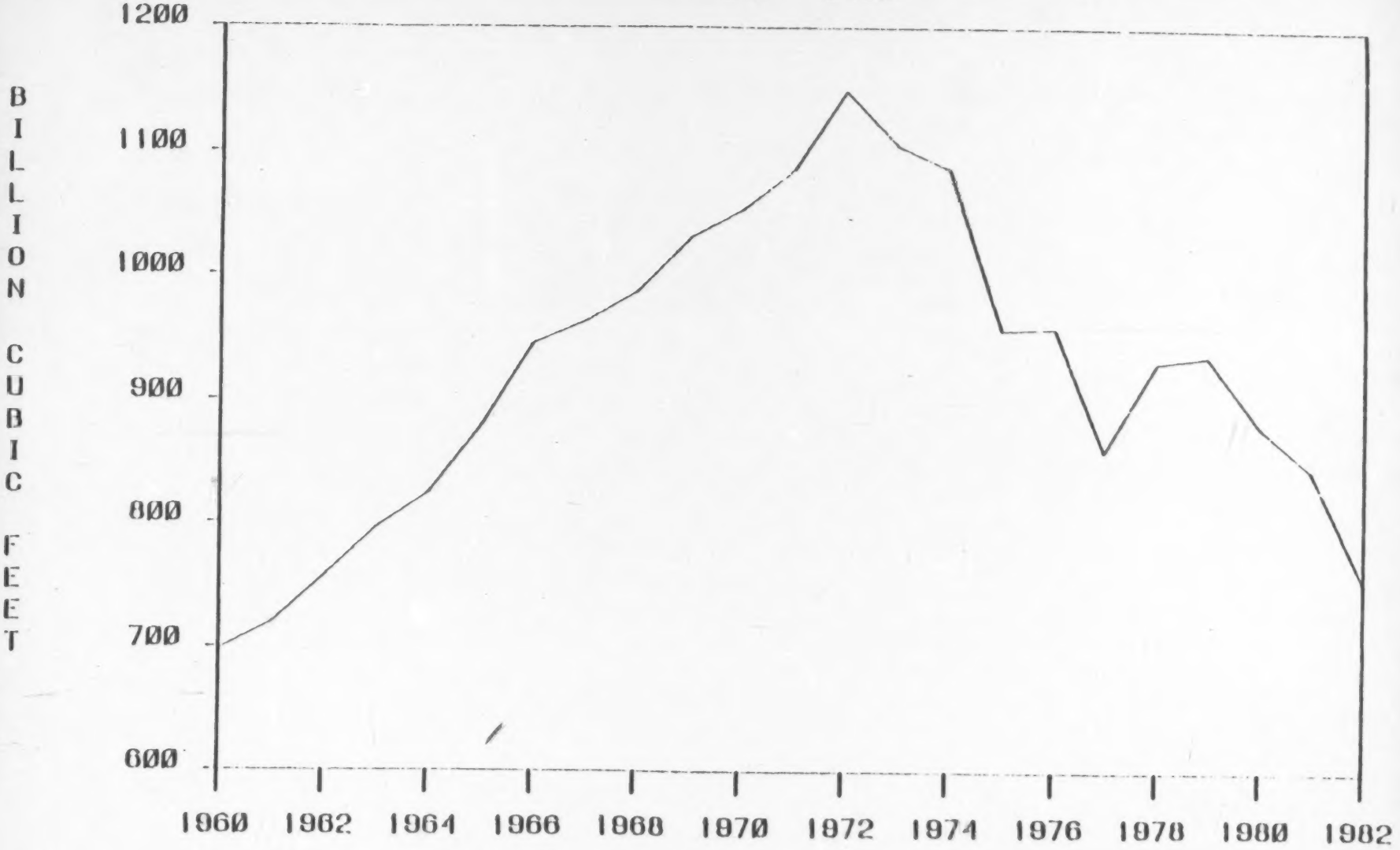
SOURCE: OHIO DIVISION OF ENERGY

FIG. 10 MONTHLY OHIO TOTAL NATURAL GAS CONSUMPTION
JANUARY 1970 - AUGUST 1983



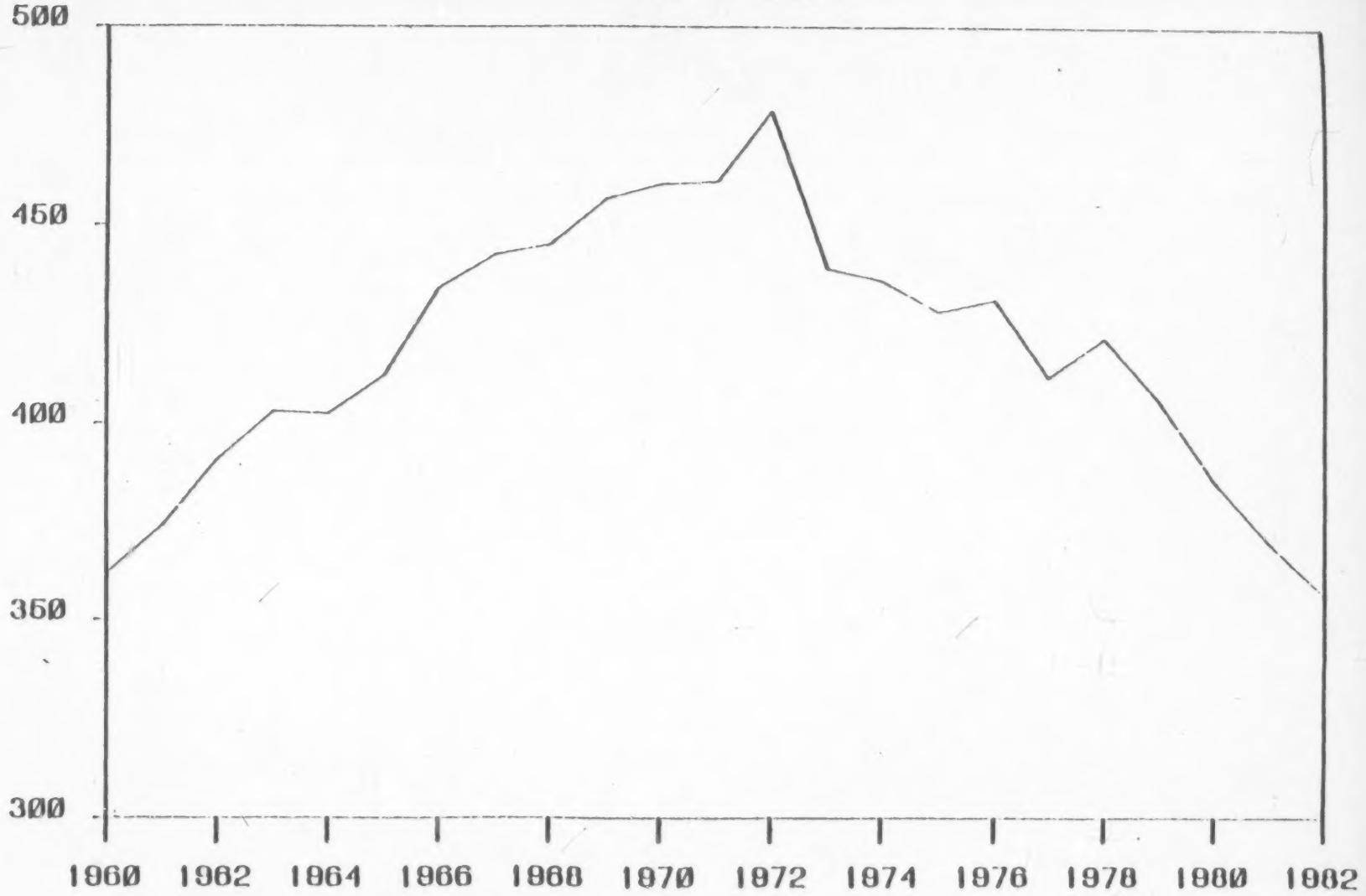
SOURCE: OHIO DIVISION OF ENERGY

FIG. 11. OHIO TOTAL NATURAL GAS CONSUMPTION, 1960 - 1982



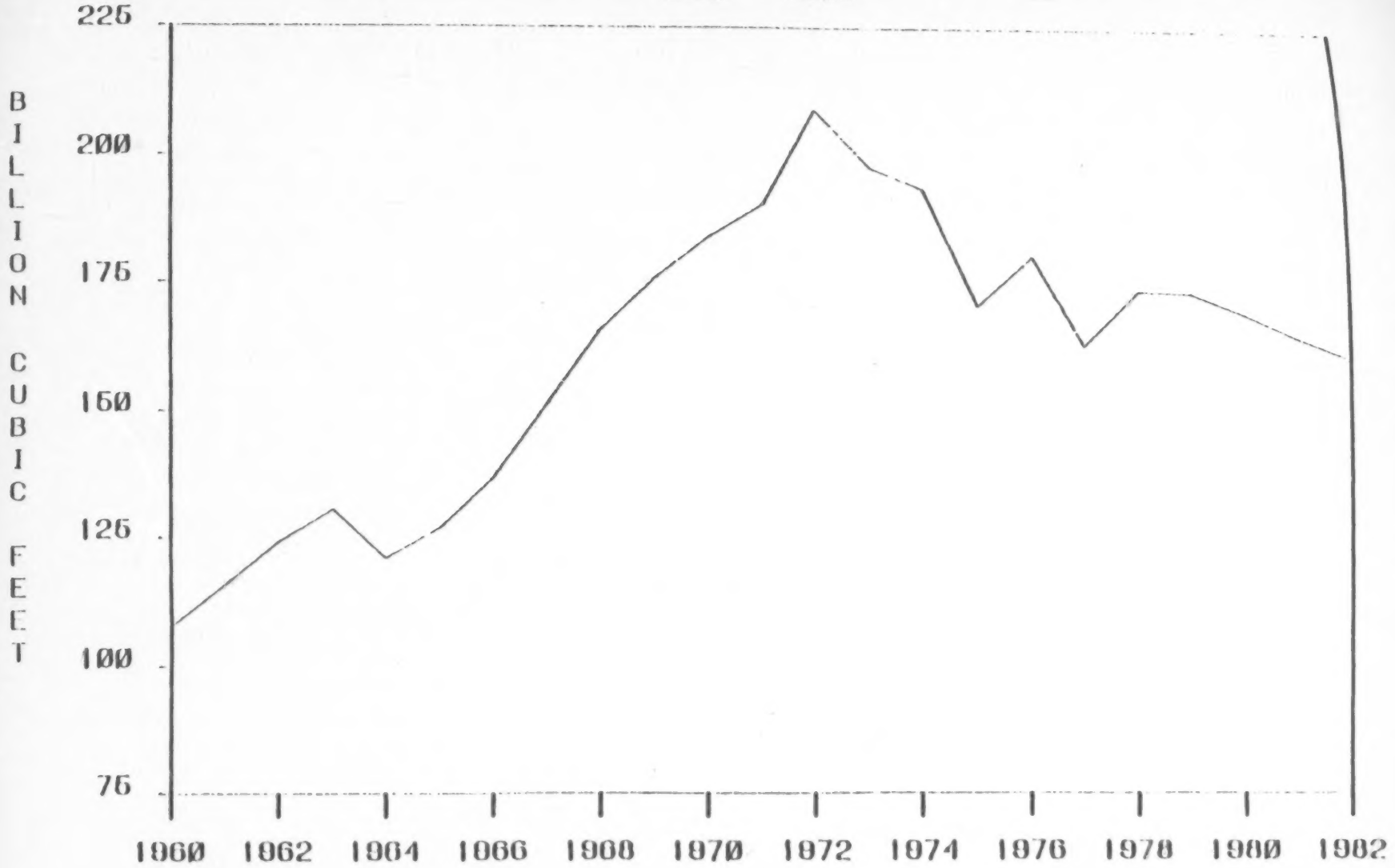
SOURCE: OHIO DIVISION OF ENERGY

FIG. 12. OHIO RESIDENTIAL NATURAL GAS CONSUMPTION, 1960 - 1982



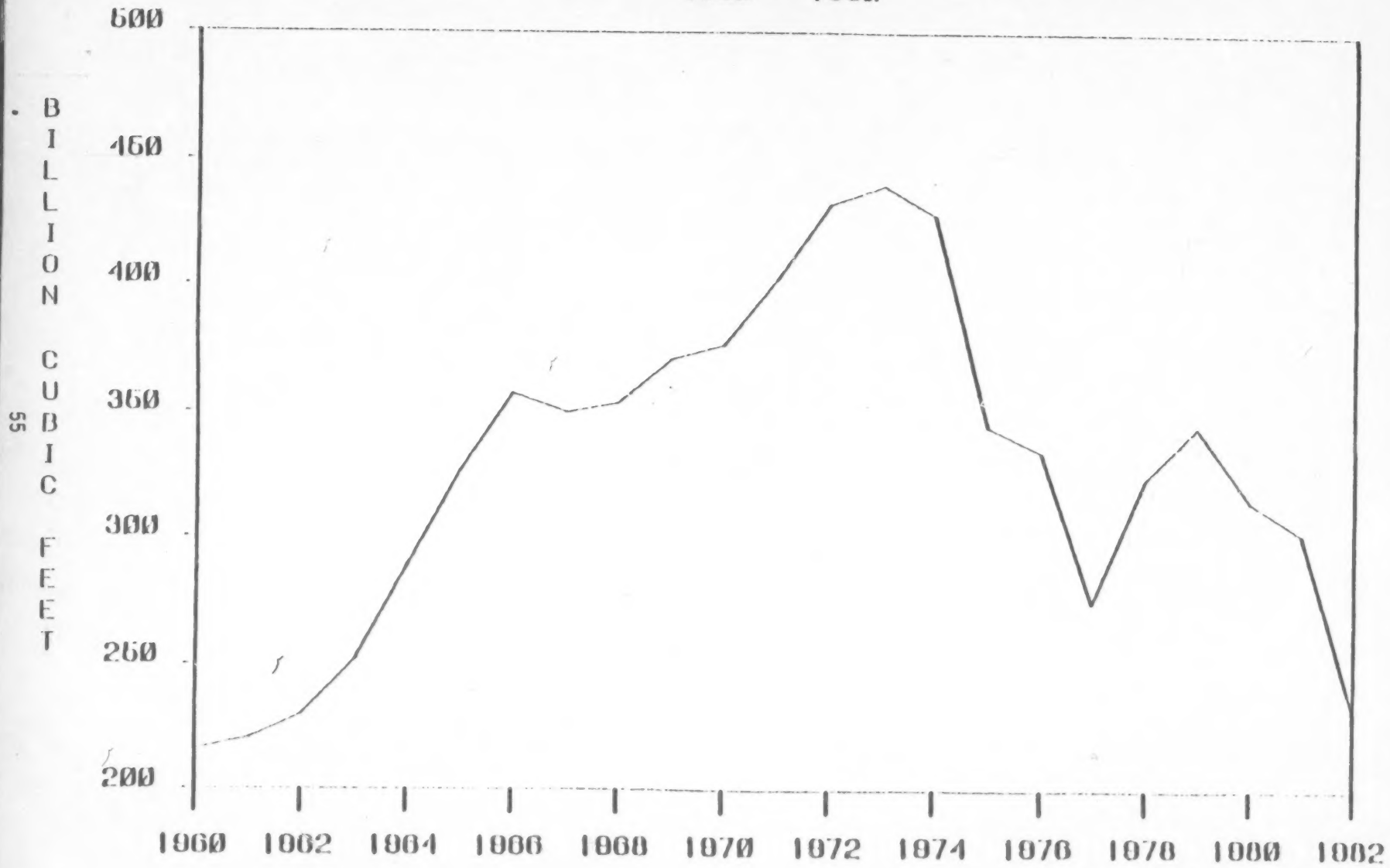
SOURCE: OHIO DIVISION OF ENERGY

FIG. 13. OHIO COMMERCIAL NATURAL GAS CONSUMPTION, 1960 - 1982



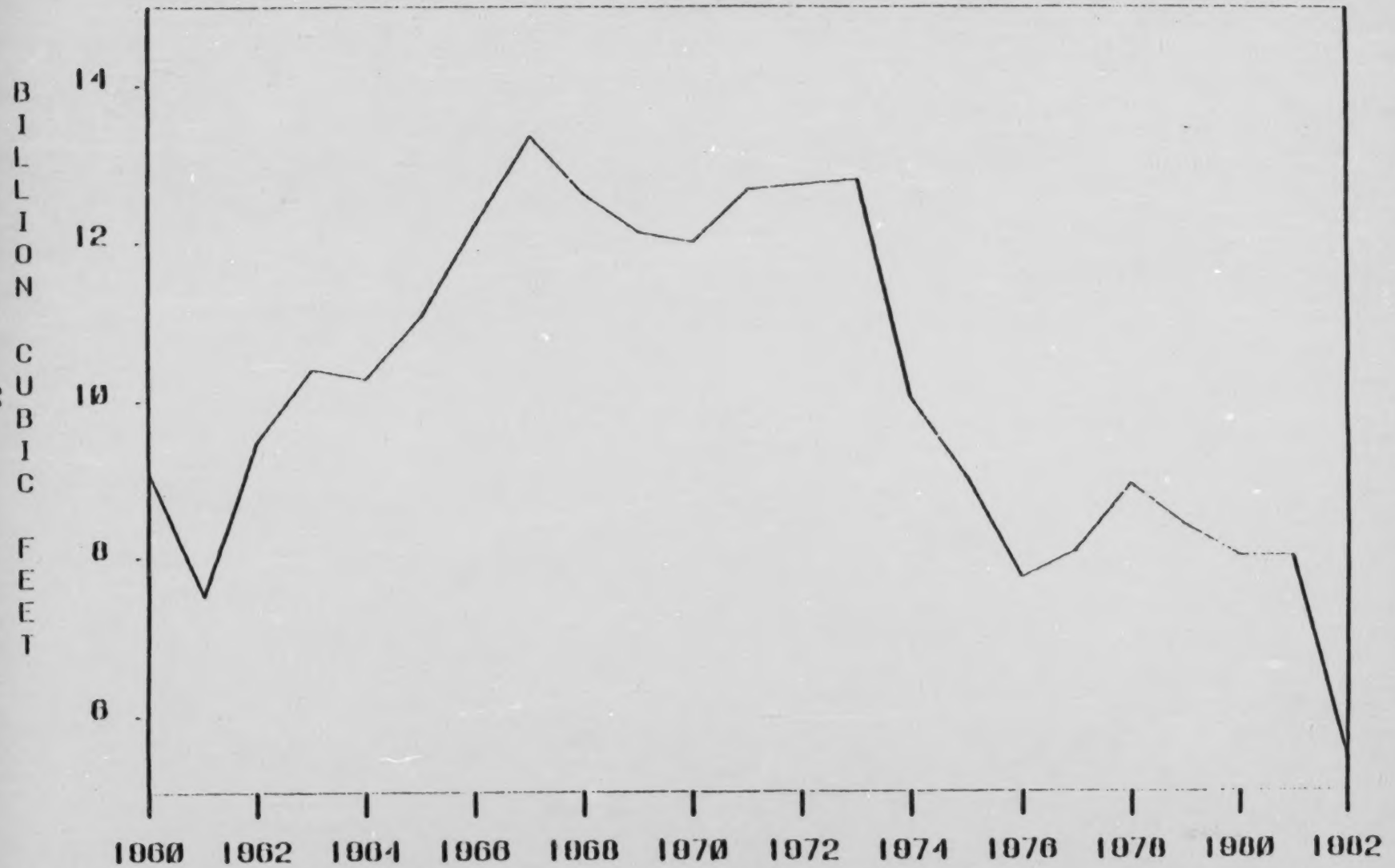
SOURCE: OHIO DIVISION OF ENERGY

FIG. 14. OHIO INDUSTRIAL NATURAL GAS CONSUMPTION
1960 - 1982



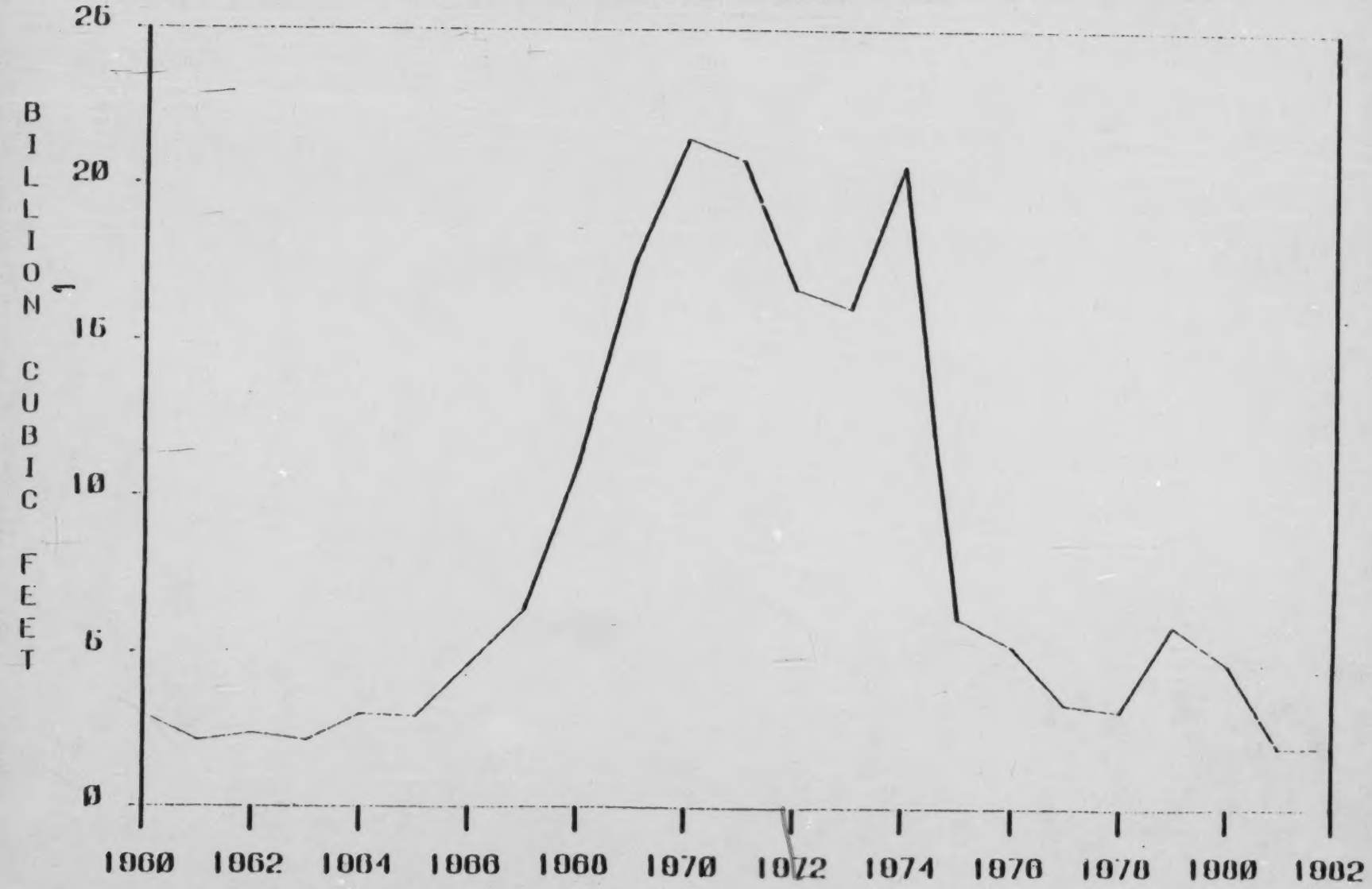
SOURCE: OHIO DIVISION OF ENERGY

FIGURE 15. OHIO TRANSPORTATION NATURAL GAS CONSUMPTION, 1960 - 1982



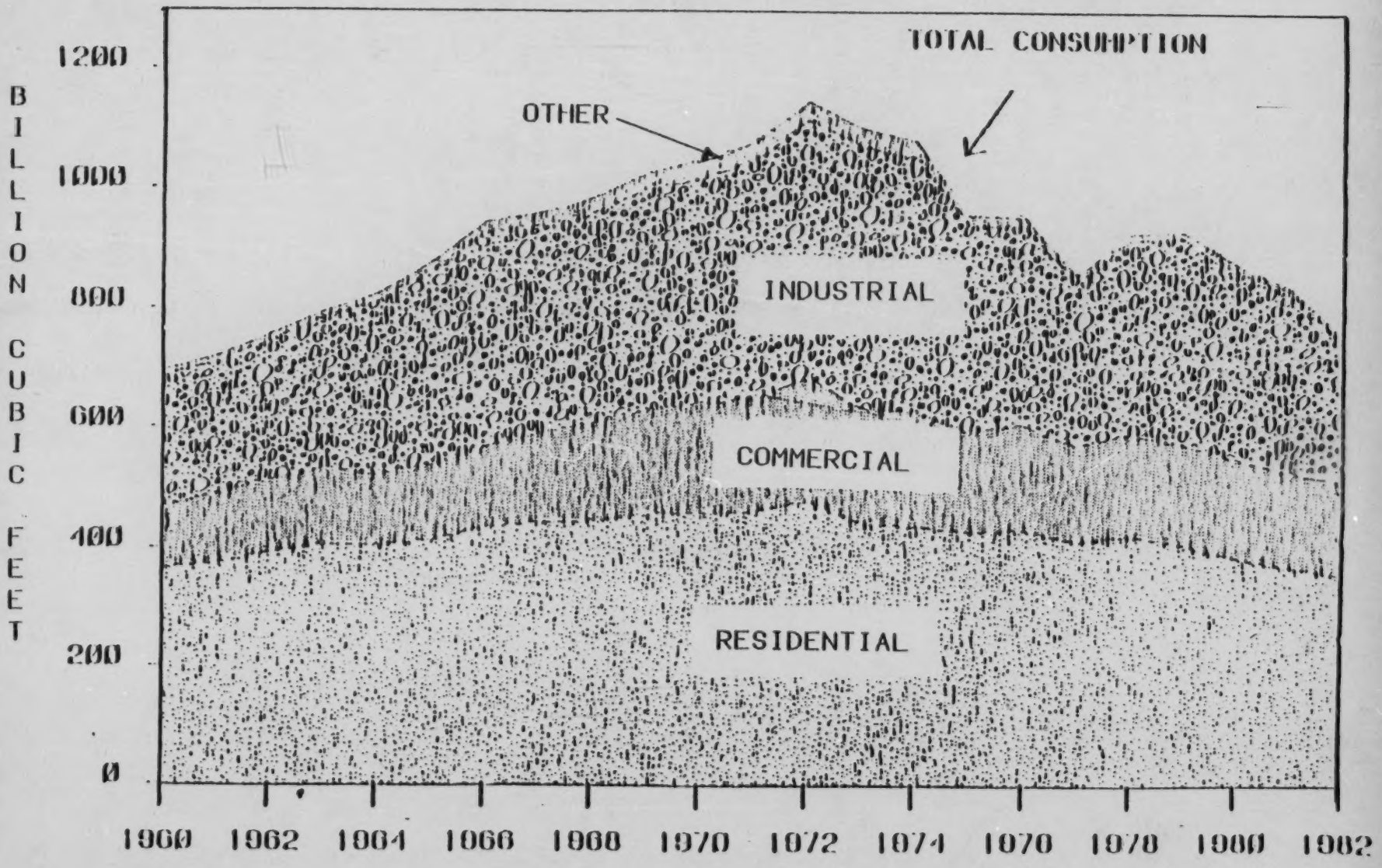
SOURCE: OHIO DIVISION OF ENERGY

FIGURE 16. OHIO ELECTRIC UTILITY NATURAL GAS CONSUMPTION
1960 - 1982



SOURCE: OHIO DIVISION OF ENERGY

FIGURE 17. OHIO NATURAL GAS CONSUMPTION BY SECTOR
1960 -- 1982



NOTE: "OTHER" INCLUDES TRANSPORTATION AND ELECTRIC UTILITY CONSUMPTION.

SOURCE: OHIO DIVISION OF ENERGY

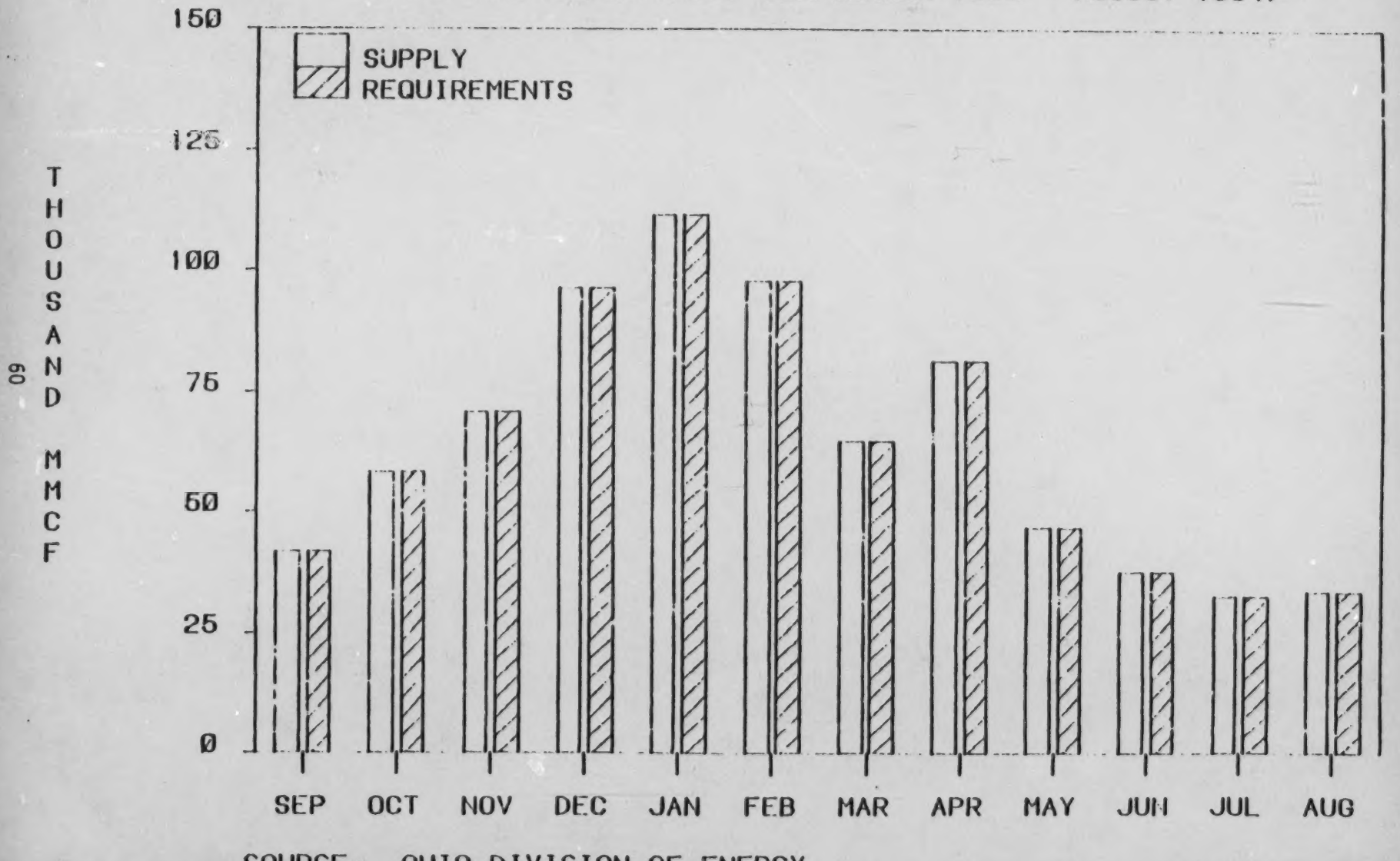
Table 13. Projected Aggregate Supply and Requirements for Natural Gas for Eight Major Utilities
September 1983 - August 1984 (MMCF)

Month/ Year	9/83	10/83	11/83	12/83	1/84	2/84	3/84	4/84	5/84	6/84	7/84	8/84	Summer Totals	Winter Totals	Annual Totals
Supply	42,013	58,435	70,817	96,551	111,447	97,763	81,259	64,635	46,971	37,538	32,521	33,817	315,930	457,837	773,767
Demand	41,896	58,203	70,517	96,264	111,432	97,763	81,259	64,635	46,971	37,538	32,521	33,817	315,581	456,235	772,016
Deficiency	-117	-232	-300	-287	-15	0	0	0	0	0	0	0	-349	-602	-951
Percent Deficiency	-0.3	-0.4	-0.4	-0.3	-0.0	0	0	0	0	0	0	0	-0.1	-0.1	-0.1

Note: A positive deficiency indicates a shortage; a negative deficiency indicates a surplus.

Source: ODOE Form SG-1 of eight major gas utilities and the Ohio Division of Energy

FIGURE 18. PROJECTED SUPPLY AND REQUIREMENTS OF NATURAL GAS
EIGHT MAJOR COMPANIES (SEPTEMBER 1983 - AUGUST 1984)



SOURCE: OHIO DIVISION OF ENERGY

Table 14. Comparison Between One Year of Actual and Forecast Demand for Eight Major Ohio Gas Utilities by Sector

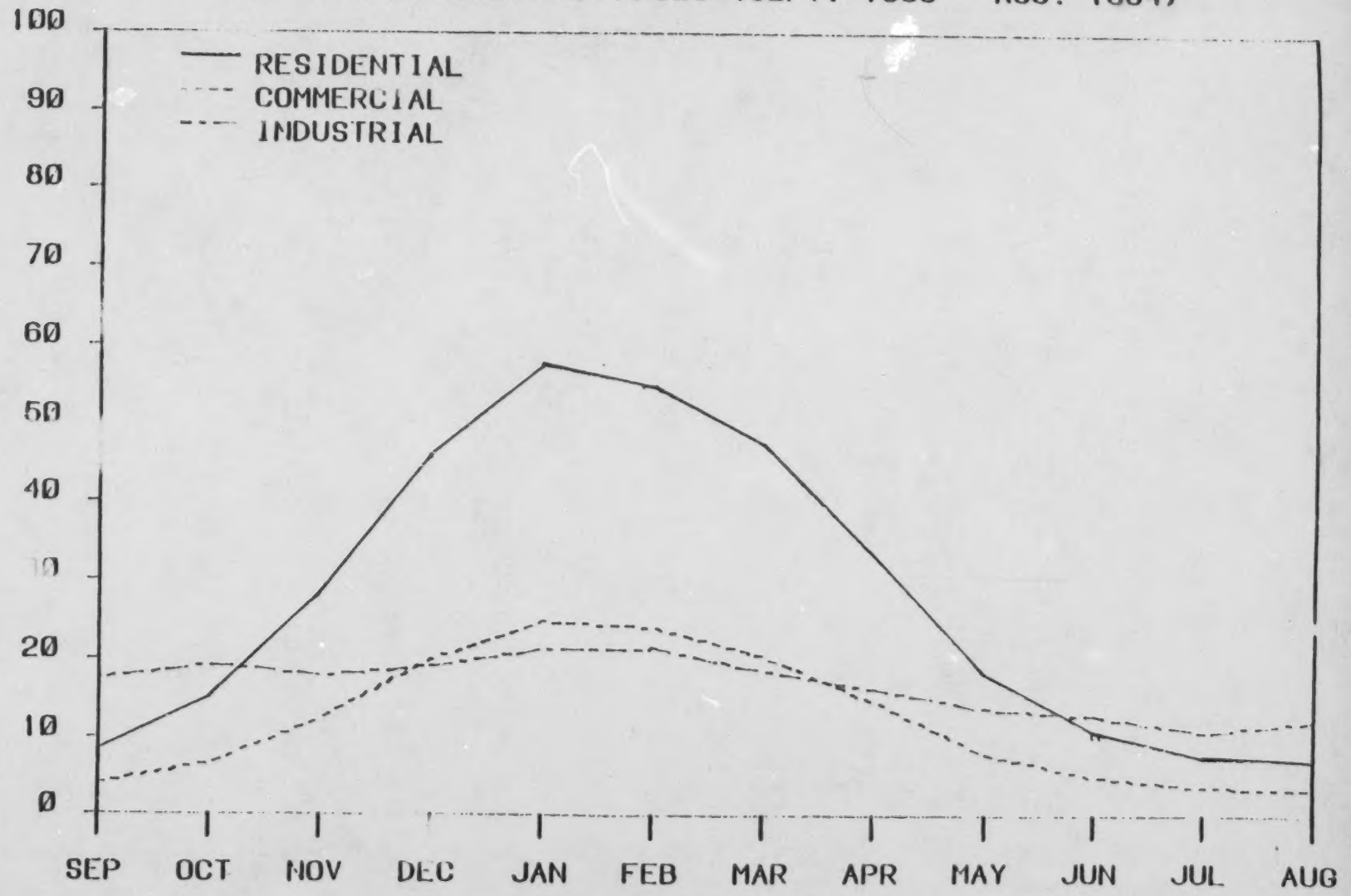
MONTH/YEAR	DEGREE DAYS	RESIDENTIAL REQUIREMENT	COMMERCIAL REQUIREMENT	INDUSTRIAL REQUIREMENT	OTHER REQUIREMENT	STORAGE (IN)	TOTAL REQUIREMENT	DEFICIENCY
9/83	87	8538	4122	17457	3049	8730	41896	-117
9/82	87	8807	4113	14167	1974	9150	38211	2
	0.0%	-3.1%	0.2%	23.2%	54.5%	-4.6%	9.6%	-5950.0%
10/83	334	15132	6653	19241	10144	7033	58203	-232
10/82	334	13095	5789	14855	9471	7980	51190	0
	0.0%	15.6%	14.9%	29.5%	7.1%	-11.9%	13.7%	999.9%
11/83	690	28429	12344	17781	11963	0	70517	-300
11/82	686	26841	11872	16757	9908	314	65684	0
	0.6%	5.9%	4.0%	6.1%	20.8%	-100.0%	7.4%	999.9%
12/83	1052	44285	19989	19050	10940	0	96264	-287
12/82	1028	38216	16959	16152	6898	682	78907	0
	2.3%	21.1%	17.9%	17.9%	58.6%	-100.0%	22.0%	999.9%
1/84	1141	57543	24816	21249	6498	1326	111432	-15
1/83	1124	50065	21976	18409	11868	5	102323	0
	1.5%	14.9%	12.9%	15.4%	-45.2%	26420.0%	8.9%	999.9%
2/84	980	54766	24034	21421	-3784	1326	97763	0
2/83	977	51699	22747	19208	-7752	276	86178	0
	0.3%	5.9%	5.7%	11.5%	51.2%	380.4%	13.4%	0.0%
3/84	823	47534	20534	18612	-5421	0	81259	0
3/83	814	38557	16520	18008	1324	152	74561	0
	1.1%	23.3%	24.3%	3.4%	-509.4%	-100.0%	9.0%	0.0%
4/84	735	33472	14744	16291	-7837	7963	64635	0
4/83	455	36593	15458	17588	-8232	7225	68632	0
	61.5%	-8.5%	-4.6%	-7.4%	4.8%	10.2%	-5.8%	0.0%
5/84	202	18224	8086	13845	-3701	10517	46971	0
5/83	196	20915	8661	15449	-6187	10136	48974	0
	3.1%	-12.9%	-6.6%	-10.4%	40.2%	3.8%	-4.1%	0.0%
6/84	30	10800	5053	12896	-1326	10115	37538	0
6/83	29	12054	5094	13553	-4014	9806	36493	0
	3.4%	-10.4%	-0.8%	-4.8%	67.0%	3.2%	2.9%	0.0%
7/84	5	7533	3654	10847	654	9833	32521	0
7/83	5	7789	3508	11678	-89	9526	32412	0
	0.0%	-3.3%	4.2%	-7.1%	834.8%	3.2%	0.3%	0.0%
8/84	11	7144	3472	12378	1851	8972	33817	0
8/83	11	7005	3481	12812	1153	9218	33661	0
	0.0%	2.0%	-0.3%	-3.4%	60.5%	-2.6%	0.5%	0.0%
SUMMER TOTAL								
	1404	100843	45786	102955	2834	63163	315581	-349
	1117	106258	46104	100102	-5924	63033	309573	2
	25.7%	-5.1%	-0.7%	2.9%	147.8%	0.2%	1.9%	********%
WINTER TOTAL								
	4684	234557	101717	98113	20196	2452	457235	-402
	4629	205378	90074	88534	22238	1429	407653	0
	1.2%	14.2%	12.9%	10.8%	-9.2%	85.6%	12.2%	999.9%
YEAR TOTAL								
	6090	335400	147503	201068	23030	65815	772816	-951
	5746	311636	136178	188636	16314	64462	717224	2
	6.0%	7.6%	8.3%	6.6%	41.2%	2.1%	7.8%	********%

NOTE: (1) WINTER TOTAL IS A SUM OF THE VALUES IN NOVEMBER, DECEMBER, JANUARY, FEBRUARY, AND MARCH

(2) 999.9% REPRESENTS AN INFINITE PERCENTAGE CHANGE RESULTING FROM AN INCREASE FROM A ZERO VALUE TO SOME NON ZERO VALUE AND THUS A DIVISION BY ZERO.

(3) A POSITIVE DEFICIENCY INDICATES SHORTAGE, A NEGATIVE DEFICIENCY INDICATES SURPLUS.

FIGURE 19. PROJECTED GAS REQUIREMENTS FOR OHIO BY SECTOR FOR EIGHT MAJOR COMPANIES (SEPT. 1983 - AUG. 1984)



SOURCE: OHIO DIVISION OF ENERGY

Table 15. Comparison Between One Year of Actual and Forecast Supply for Eight Major Ohio Gas Utilities by Source (MMCF)

MO/YR	COLUMBIA GAS	CONSOLID-ATED GAS	LAWRENCEBURG	MICH. WISC.	PANHANDLE EAST	TENN. GAS	TEXAS EASTERN	TEXAS GAS	EMERG GAS	OHIO PRODUCT	SNG	STORAGE/ PROPANE	OTHER	TOTAL SUPPLIES
3/83	15168	13610	255	[illegible]	5769	150	615	10	0	4717	1567	165	-50	42013
3/82	13224	10976	249	58	5275	111	593	7	0	4847	1596	1272	-19	38209
	14.7%	24.1%	2.4%	-50.0%	9.4%	35.1%	3.7%	42.9%	0.0%	-3.1%	-1.8%	-87.0%	-163.2%	10.0%
10/83	24621	17531	261	71	6164	150	635	15	0	4732	2153	170	-70	56435
10/82	21067	14178	252	110	5395	135	599	13	0	4494	2189	564	-6	51190
	16.9%	23.7%	4.4%	-35.5%	14.3%	11.1%	6.0%	15.4%	0.0%	0.8%	-1.6%	-69.9%	-1066.7%	14.2%
11/83	35557	10767	213	84	4655	150	615	24	0	4725	2478	11567	-90	70017
11/82	33091	9314	227	127	5366	126	582	24	0	5164	3238	8174	251	65484
	7.5%	15.6%	-6.2%	-33.9%	-13.3%	19.0%	5.7%	8.3%	0.0%	-7.1%	-23.5%	41.5%	-135.9%	7.8%
12/83	50358	17112	165	165	4962	150	635	41	0	4881	3247	15083	-70	96551
12/82	39953	9814	187	157	5788	118	631	30	0	5300	4254	12986	-331	78907
	26.0%	74.0%	-11.8%	-7.6%	-14.3%	[illegible]	0.6%	36.7%	0.0%	-9.4%	-23.6%	15.5%	78.9%	22.4%
[illegible]	59474	19045	132	87	5307	150	635	51	0	4700	3442	18402	-60	111447
1/81	52484	15205	244	204	5011	125	672	43	0	5059	4543	18609	-76	102323
	12.9%	25.3%	-45.9%	-56.4%	5.9%	20.0%	-5.5%	18.6%	0.0%	-5.5%	-24.2%	-1.1%	21.1%	8.9%
2/84	58289	22911	107	162	4660	145	560	45	0	4752	3101	10008	63	97743
2/83	43053	15571	241	161	4424	135	558	35	0	4559	4279	12438	-80	84178
	[illegible]	47.1%	-55.6%	0.6%	5.3%	7.4%	0.4%	28.6%	0.0%	4.2%	-25.7%	-12.5%	178.7%	13.4%
3/84	[illegible]	16910	500	101	4834	150	630	36	0	5197	2818	8958	50	81259
3/83	35274	13083	271	165	4718	111	571	29	0	5139	3897	10498	3	74561
	16.2%	21.8%	84.5%	9.7%	2.5%	42.3%	10.3%	24.1%	0.0%	1.1%	-27.7%	-14.7%	1566.7%	9.0%
4/84	31560	[illegible]	540	168	4531	110	610	22	0	5169	0	495	-10	64635
4/83	31001	23528	458	161	4534	109	570	20	0	4673	2394	910	80	68632
	1.8%	-8.9%	17.9%	4.3%	-0.1%	0.9%	7.0%	10.0%	0.0%	6.1%	-100.0%	-45.6%	-112.5%	-5.8%
5/84	[illegible]	17010	573	54	4516	110	630	13	0	5178	0	230	60	46971
5/83	[illegible]	17562	457	110	4523	119	605	11	0	4871	1745	421	176	48974
	[illegible]	-3.1%	12.8%	-54.2%	-0.2%	-7.6%	4.1%	18.2%	0.0%	6.3%	-100.0%	-45.4%	-65.9%	-4.1%
[illegible]	13931	11826	[illegible]	48	4467	110	610	9	0	5239	0	165	4	37538
6/83	11940	12046	[illegible]	87	4489	104	605	7	0	5238	1376	321	-297	36493
	16.7%	[illegible]	[illegible]	-44.8%	1.3%	5.8%	0.8%	28.6%	0.0%	0.0%	-100.0%	-48.6%	101.3%	2.9%
7/84	[illegible]	[illegible]	1107	37	[illegible]	110	630	8	0	5354	0	170	73	32521
7/83	[illegible]	[illegible]	1003	52	[illegible]	106	625	6	0	4937	1225	844	-8	32412
	[illegible]	-3.1%	10.4%	-28.8%	[illegible]	3.8%	0.8%	33.3%	0.0%	8.4%	-100.0%	3.7%	1012.5%	0.3%
8/84	[illegible]	10791	2037	30	4439	110	620	6	0	5756	0	145	112	33817
8/83	9562	10822	1151	61	4371	108	638	6	0	5418	1244	145	111	33661
	-7.8%	-0.3%	76.8%	-37.7%	1.6%	1.9%	-2.8%	0.0%	0.0%	6.2%	-100.0%	13.8%	0.9%	0.5%
SUMMER TOTAL														
	122208	104219	5836	[illegible]	35505	850	4350	83	0	36145	3720	1560	119	315230
	114498	101355	4415	[illegible]	33036	792	4235	70	0	34898	11771	3797	37	309571
	6.8%	2.8%	[illegible]	[illegible]	4.4%	7.3%	2.7%	18.6%	0.0%	3.6%	-68.4%	-58.9%	221.6%	2.1%
WINTER TOTAL														
	236665	[illegible]	1117	661	24618	751	3075	199	0	24325	[illegible]	44010	107	457837
	204861	[illegible]	1170	814	25107	615	3014	161	0	25221	[illegible]	42705	233	407653
	15.5%	15.9%	-4.5%	-18.8%	-1.5%	22.4%	2.0%	23.6%	0.0%	-3.6%	-25.0%	3.4%	[illegible]	12.3%
YEAR TOTAL														
	358953	190964	6953	1106	58923	1601	7425	282	0	60470	18888	44378	12	773767
	319359	165162	5605	1441	58143	1407	7249	231	0	60119	31982	46502	-196	717224
	12.4%	15.6%	24.0%	-24.3%	1.0%	13.9%	2.4%	22.1%	0.0%	0.6%	-40.9%	-0.2%	106.1%	7.9%

NOTE: (1) WINTER TOTAL IS A SUM OF THE VALUES IN [illegible]ER, DECEMBER, JANUARY, FEBRUARY, AND MARCH.

(2) 999.9% REPRESENTS AN INCREASE FROM A ZERO VALUE [illegible] THUS [illegible]ON BY ZERO.

Table 16. Independent Forecasts of Gas Supply and Demand for the Eight Major Ohio Gas Utilities November 1983 - March 1984 (MMCF)

	Normal Weather			10% Colder Than Normal Weather		
	Supply	Demand	Surplus (Deficiency)[1]	Supply	Demand	Surplus (Deficiency)[1]
Cincinnati Gas & Electric	49,982	45,820	4,162	53,819	49,580	4,239
Columbia Gas	156,457	154,730	1,727	166,419	166,620	(201)
Dayton Power & Light	36,518	35,960	558	39,241	38,580	661
East Ohio Gas	180,680 -	188,120	(7,440)	191,661	196,870	(5,209)
National Gas	6,548	6,548	-0-	6,584	6,584	-0-
Ohio Gas	4,276	4,276	-0-	4,590	4,590	-0-
River Gas	2,634	2,634	-0-	2,775	2,775	-0-
West Ohio Gas	7,327	7,327	-0-	7,825	7,825	-0-
Total	444,422	445,415	(993)	472,914	473,424	(510)

Note: [1]Numbers within parentheses indicate deficiency. Columbia Gas of Ohio and East Ohio Gas estimate that there is over 145,853 MMCF in storage to meet any deficiencies in Ohio. East Ohio Gas Company indicated that their useable storage capacity of 143,307 MMCF represents 23% of Consolidated's useable storage capacity.

Source: June 1983 ODOE Form SG-2 of reporting utilities, and the Ohio Deivision of Energy.

Table 17. Independent Forecast of Annual Natural Gas
End Use Requirements [illegible]lendar Year 1984
(Thousands [illegible] MMCF)

	Actual 1982	Lower 95% Confidence Limit	Forecast 1984	Upper 95% Confidence Limit	Forecast % Change
Residential	356.51	299	310	321	-13.05
Commercial	159.23	134	141	148	-11.45
Industrial	231.14	177	205**	233	-11.31
[illegible]	7.41	3	7	11	- 5.53
Total	754.29	583	663	713	-12.10

Source: Ohio Division of Energy.

*Other includes transportation and electric utilities sectors.

** Industrial forecast is based on the assumption that average unemployment. will be 9%.

Table 18. Independent Forecasts of Gas Supply and Demand for Cincinnati Gas and Electric Company November 1983 - March 1984 (MMCF)

	Normal Weather				10% Colder Than Normal Weather			
	Supply	HDD[2]	Demand	Surplus (Deficiency)[3]	Supply	HDD[2]	Demand	Surplus (Deficiency)[3]
November 1983	7,690	648	69,001	790	8,259	713	7,460	799
December 1983	11,298	967	9,900	1,398	12,148	1,064	10,730	1,418
January 1984	12,034	1,119	11,890	144	13,015	1,231	12,850	165
February 1984	10,533	921	9,480	1,053	11,339	1,013	10,270	1,069
March 1984	8,427	719	7,650	777	9,058	791	8,270	788
Total[1]	49,982		45,820	4,162	53,819		49,580	4,239

Notes: [1]Totals may not add due to independent rounding.

[2]HDD - Heating Degree-Days.

[3]Numbers within parentheses indicate deficiency. Projected deficiency levels can be met with gas in storage.

Source: Cincinnati Gas & Electric's June 1983 ODOE Form SG-2, and the Ohio Division of Energy.

Table 19. Independent Forecasts of Gas Supply and Demand for Columbia Gas of Ohio November 1983 - March 1984 (MMCF)

	Normal Weather				10% Colder Than Normal Weather			
	Supply	HDD[2]	Demand	Surplus (Deficiency)[3]	Supply	HDD[2]	Demand	Surplus (Deficiency)[3]
November 1983	23,932	570	24,460	(528)	25,022	627	25,900	(878)
December 1983	34,093	951	33,040	1,053	36,040	1,046	35,440	600
January 1984	40,188	1,173	40,020	168	42,733	1,290	42,970	(237)
February 1984	31,580	1,102	32,090	(510)	34,028	1,212	34,870	(842)
March 1984	26,664	918	25,120	1,544	28,596	1,010	27,440	1,156
Total[1]	156,457		154,730	1,727	166,419		166,620	(201)

Notes: [1]Totals may not add due to independent rounding.

[2]HDD - Heating Degree-Days.

[3]Numbers within parentheses indicate deficiency. Projected deficiency levels can be met with gas in storage.

Source: Columbia Gas of Ohio's June 1983 ODOE Form SG-2, and the Ohio Division of Energy.

Table 20. Independent Forecasts of Gas Supply and Demand for Dayton Power & Light Company November 1983 - March 1984 (MMCF)

	Normal Weather				10% Colder Than Normal Weather			
	Supply	HDD[2]	Demand	Surplus (Deficiency)[3]	Supply	HDD[2]	Demand	Surplus (Deficiency)[3]
November 1983	5,407	487	5,130	277	5,711	536	5,410	301
December 1983	7,388	896	7,400	(12)	7,915	986	7,910	5
January 1984	8,418	1,161	9,130	(712)	9,090	1,277	9,790	(700)
February 1984	8,679	1,152	8,630	49	9,345	1,267	9,290	55
March 1984	6,626	891	5,670	956	7,180	980	6,180	1,000
Total[1]	36,518		35,960	558	39,241		38,580	661

Notes: [1]Totals may not add due to independent rounding.

[2]HDD - Heating Degree-Days.

[3]Numbers within parentheses indicate deficiency. Projected deficiency levels can be met with gas in storage.

Source: Dayton Power & Light Company's June 1983 ODOE Form Sg-2, and the Ohio Division of Energy.

Table 21. Independent Forecasts of Gas Supply and Demand for East Ohio Gas Company November 1983 - March 1984

	Normal Weather				10% Colder Than Normal Weather			
	Supply	HDD[2]	Demand	Surplus (Deficiency)[3]	Supply	HDD[2]	Demand	Surplus (Deficiency)[3]
November 1983	27,660	565	30,360	(2,700)	29,208	621	31,360	(2,152)
December 1983	37,401	962	40,160	(2,759)	39,765	1,058	41,870	(2,105)
January 1984	43,476	1,204	46,850	(3,374)	46,242	1,324	48,990	(2,748)
February 1984	39,282	1,168	38,560	722	41,664	1,285	40,640	1,024
March 1984	32,861	1,015	32,190	671	34,782	1,117	34,010	772
Total[1]	180,680		188,120	(7,440)	191,661		196,870	(5,209)

Notes: [1]Totals may not add due to independent rounding.

[2]HDD - Heating Degree-Days.

[3]Numbers within parentheses indicate deficiency. Projected deficiency levels can be met with gas in storage.

Source: East Ohio Gas Company's November 1982 ODOE Form SG-2, and the Ohio Division of Energy.

APPENDIX A: ELECTRICITY

Table A-1. Allegheny Power System:
Forecast of Electric Energy Demand
(1000 MWH)

	Actual Demand (1982-1983)	Utility Forecast (1983-1984)	Forecast % Change (Utility Forecast vs. Actual)	ODOE Forecast (1983-1984)	Forecast % Change (ODOE Forecast vs. Actual)
November	2,394	2,592	8.3	2,623	9.6
December	2,569	2,886	12.3	2,876	12.0
January	2,792	3,213	15.1	3.099	11.0
February	2,525	2,755	9.1	2,770	9.7
March	2,690	2,783	3.5	2,863	6.4
April	2,453	2,482	1.2	2,570	4.8
May	2,363	2,532	7.2	2,513	6.3
June	2,429	2,514	3.5	2,503	3.0
July	2,592	2,609	0.7	2,628	1.4
August	2,726	2,692	-1.2	2,694	1.2
September	2,471	2,510	1.6	2,512	1.7
October		2,665		2,645	

Source: Form EIA-119M and the Ohio Division of Energy.

Table A-2. American Electric Power:
Forecast of Electric Energy Demand
(1000 MWH)

	Actual Demand (1982-1983)	Utility Forecast (1983-1984)	Forecast % Change (Utility Forecast vs. Actual)	ODOE Forecast (1983-1984)	Forecast % Change (ODOE Forecast vs. Actual)
November	6,146	6,589	11.6	6,656	8.3
December	6,537	7,315	11.9	7,250	10.9
January	7,230	8,096	12.0	7,947	9.9
February	6,409	7,367	14.9	7,079	10.5
March	6,771	7,120	5.2	7,347	8.5
April	6,289	6,235	-0.1	6,744	7.2
May	6,004	6,104	1.7	6,445	7.3
June	6,320	6,198	-1.9	6,635	5.0
July	7,053	6,618	-6.2	7,220	2.4
August	7,376	6,796	-7.9	7,199	2.4
September	6,398	6,226	-2.7	6,403	0.1
October		6,482		6,491	

Source: Form EIA-119M and the Ohio Division of Energy.

Table A-3. Cincinnati Gas and Electric:
Forecast of Electric Energy Demand
(1000 MWH)

	Actual Demand (1982-1983)	Utility Forecast (1983-1984)	Forecast % Change (Utility Forecast vs. Actual)	ODOE Forecast (1983-1984)	Forecast % Change (ODOE Forecast vs. Actual)
November	1,189	1,193	0.3	1,327	11.6
December	1,261	1,333	5.7	1,480	
January	1,376	1,417	3.0	1,567	13.9
February	1,211	1,269	4.8	1,391	14.9
March	1,261	1,293	2.5	1,416	12.3
April	1,172	1,115	-4.9	1,289	10.0
May	1,147	1,209	5.4	1,315	14.6
June	1,330	1,344	1.1	1,425	7.1
July	1,616	1,451	-10.2	1,667	3.2
August	1,667	1,475	-11.5	1,650	-1.0
September	1,325	1,236		1,393	5.1
October		1,184		1,340	

Source: Form EIA-119M and the Ohio Division of Energy.

Table A-4. Cleveland Electric Illuminating Company:
Forecast of Electric Energy Demand
(1000 MWH)

	Actual Demand (1982-1983)	Utility Forecast (1983-1984)	Forecast % Change (Utility Forecast vs. Actual)	ODOE Forecast (1983-1984)	Forecast % Change (ODOE Forecast vs. Actual)
November	1,361	1,443	6.0	1,592	17.0
December	1,410	1,562	10.8	1,675	18.8
January	1,535	1,663	8.3	1,790	16.6
February	1,413	1,536	8.7	1,645	16.4
March	1,532	1,583	3.3	1.711	11.7
April	1,406	1,429	1.6	1,567	11.5
May	1,414	1,502	6.2	1,536	8.6
June	1,533	1,535	0.1	1,659	8.2
July	1,682	1,602	-4.8	1,760	4.6
August	1,797	1,626	-9.5	1,762	1.9
September	1,587	1,475	-7.1	1,606	1.2
October		1,541		1,627	

Source: Form EIA-119M and the Ohio Division of Energy.

Table A-5. Dayton Power and Light:
Forecast of Electric Energy Demand
(1000 MWH)

	Actual Demand (1982-1983)	Utility Forecast (1983-1984)	Forecast % Change (Utility Forecast vs. Actual)	ODOE Forecast (1983-1984)	Forecast % Change (ODOE Forecast vs. Actual)
November	834	912	9.4	940	12.7
December	887	1,009	13.8	1,016	14.5
January	986	1,102	11.8	1,126	14.2
February	859	991	15.4	999	16.3
March	893	963	7.8	1,010	13.1
April	826	836	1.2	914	10.6
May	796	825	3.6	883	10.9
June	880	875	-0.6	934	6.1
July	1,023	947	-7.4	1,062	3.8
August	1,056	949	-10.1	1,054	-0.2
September	872	854	-2.1	911	4.5
October		894		941	

Source: Form EIA-119M and the Ohio Division of Energy.

Table A-6. Ohio Edison Company:
Forecast of Electric Energy Demand
(1000 MWH)

	Actual Demand (1982-1983)	Utility Forecast (1983-1984)	Forecast % Change (Utility Forecast vs. Actual)	ODOE Forecast (1983-1984)	Forecast % Change (ODOE Forecast vs. Actual)
November	1,780	1,953	9.7	1,999	12.3
December	1,812	2,065	14.0	2,112	16.6
January	1,992	2,236	12.2	2,260	13.5
February	1,823	2,028	11.2	2,048	12.3
March	1,977	2,042	3.3	2,147	8.6
April	1,837	1,835	-0.1	1,955	6.4
May	1,809	1,850	2.3	1,946	7.6
June	1.932	1,883	-2.5	1,996	3.3
July	2,101	2,056	-2.1	2,136	1.7
August	2,191	2,075	-5.3	2,156	1.6
September	1,947	1,913	-1.4	1,986	2.3
October		1,988		2,052	

Source: Form EIA-119M and the Ohio Division of Energy.

Table A-7. Ohio Valley Electric Corporation:
Forecast of Electric Energy Demand
(1000 MWH)

	Actual Demand (1982-1983)	Utility Forecast (1983-1984)	Forecast % Change (Utility Forecast vs. Actual)
November	1,259	1,356	7.7
December	1,322	1,409	6.6
January	1,436	1,440	0.3
February	1,173	1,309	9.5
March	1,257	1,371	9.1
April	1,159	1,373	18.7
May	1,090	1,436	31.7
June	1,170	1,336	14.2
July	1,162	1,461	25.7
August	1,299	1,461	12.5
September	1,127	1,322	17.3
October		1,308	

Note: Figures reflect total net generation.

Source: Form EIA-119M and the Ohio Division of Energy.

Table A-8. Toledo Edison Company:
Forecast of Electric Energy Demand
(1000 MWH)

	Actual Demand (1982-1983)	Utility Forecast (1983-1984)	Forecast % Change (Utility Forecast vs. Actual)	ODOE Forecast (1983-1984)	Forecast % Change (ODOE Forecast vs. Actual)
November	575	644	12.0	643	11.8
December	601	666	10.8	681	13.3
January	654	680	4.0	741	13.3
February	581	643	10.7	664	14.3
March	615	690	12.2	688	11.9
April	582	635	9.1	622	6.9
May	572	619	8.2	623	8.9
June	611	627	2.6	658	4.4
July	676	658	-2.7	690	2.1
August	709	667	-5.9	699	-1.4
September	625	627	0.3	636	1.8
October	NA	627	NA	658	NA

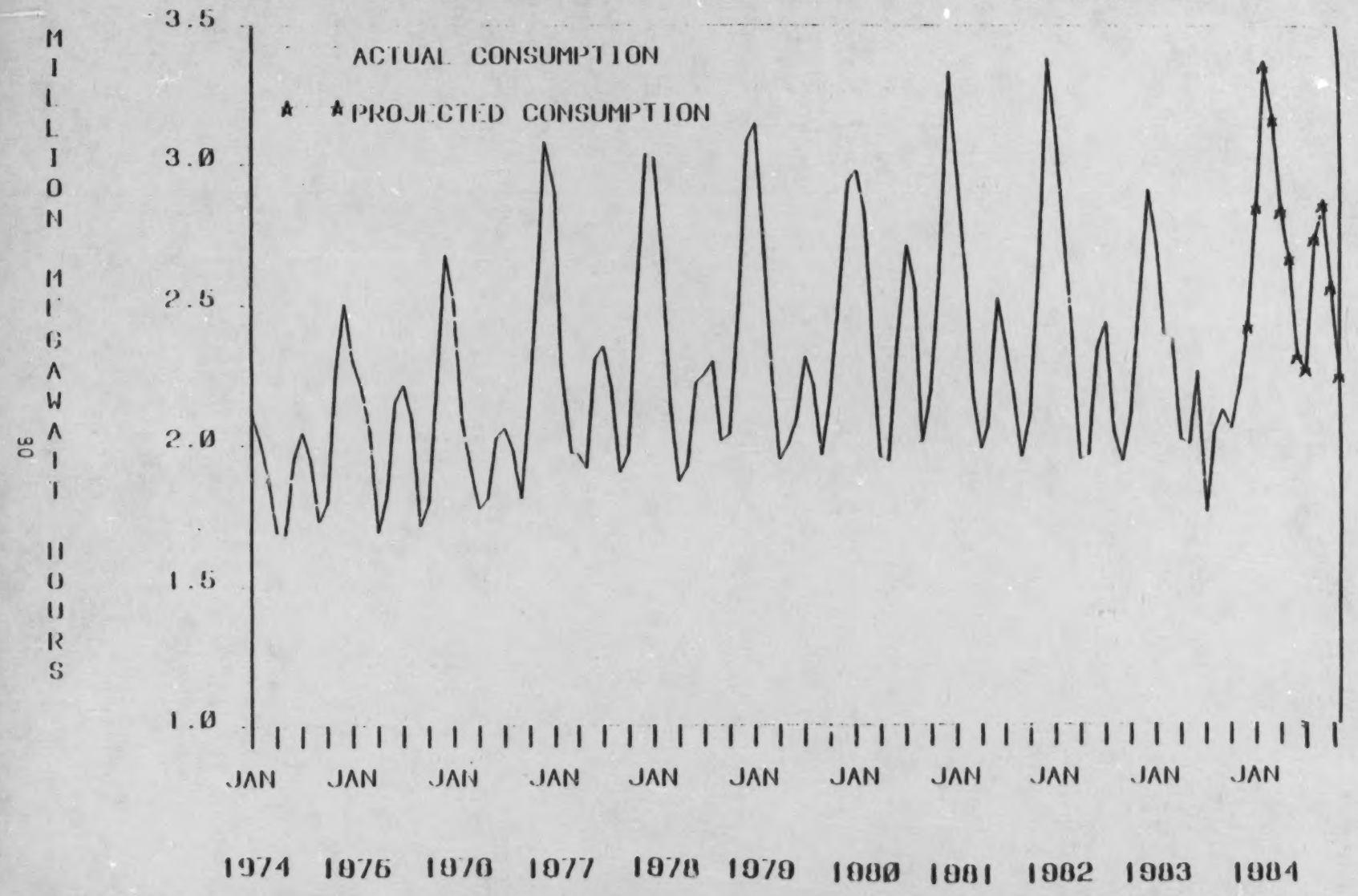
Source: Form EIA-119M and the Ohio Division of Energy.
Note: NA = Not Available

Table A-9. Independent Forecast of Ohio Electricity Demand
Residential Sector
(1000 MWH)

	Lower 95% Confidence Limit	ODOE Forecast (1983-1984)	Upper 95% Confidence Limit	Actual (1982-1983)	Forecast Percentage Change
November	2,081	2,420	2,759	2,114	14.5
December	2,474	2,846	3,218	2,527	12.6
January	2,955	3,344	3,733	2,910	14.9
February	2,750	3,155	3,560	2,726	15.7
March	2,411	2,831	3,251	2,391	18.4
April	2,223	2,658	3,092	2,378	11.8
May	1,859	2,308	2,756	2,017	14.4
June	1,800	2,262	2,725	2,024	11.7
July	2,250	2,726	3,202	2,603	4.7
August	2,362	2,850	3,339	2,818	1.1
September	2,054	2,556	3,057	2,604	-1.8
October	1,692	2,242	2,792		

Note: The forecast is based upon monthly summary statistics of the Ohio Electric Utilities Institute for eight major investor-owned electric utilities (excluding OVEC).

FIGURE A-1. 6. MONTHLY OHIO RESIDENTIAL ELECTRICITY CONSUMPTION
ACTUAL AND PROJECTED, JANUARY 1974 - OCTOBER 1984



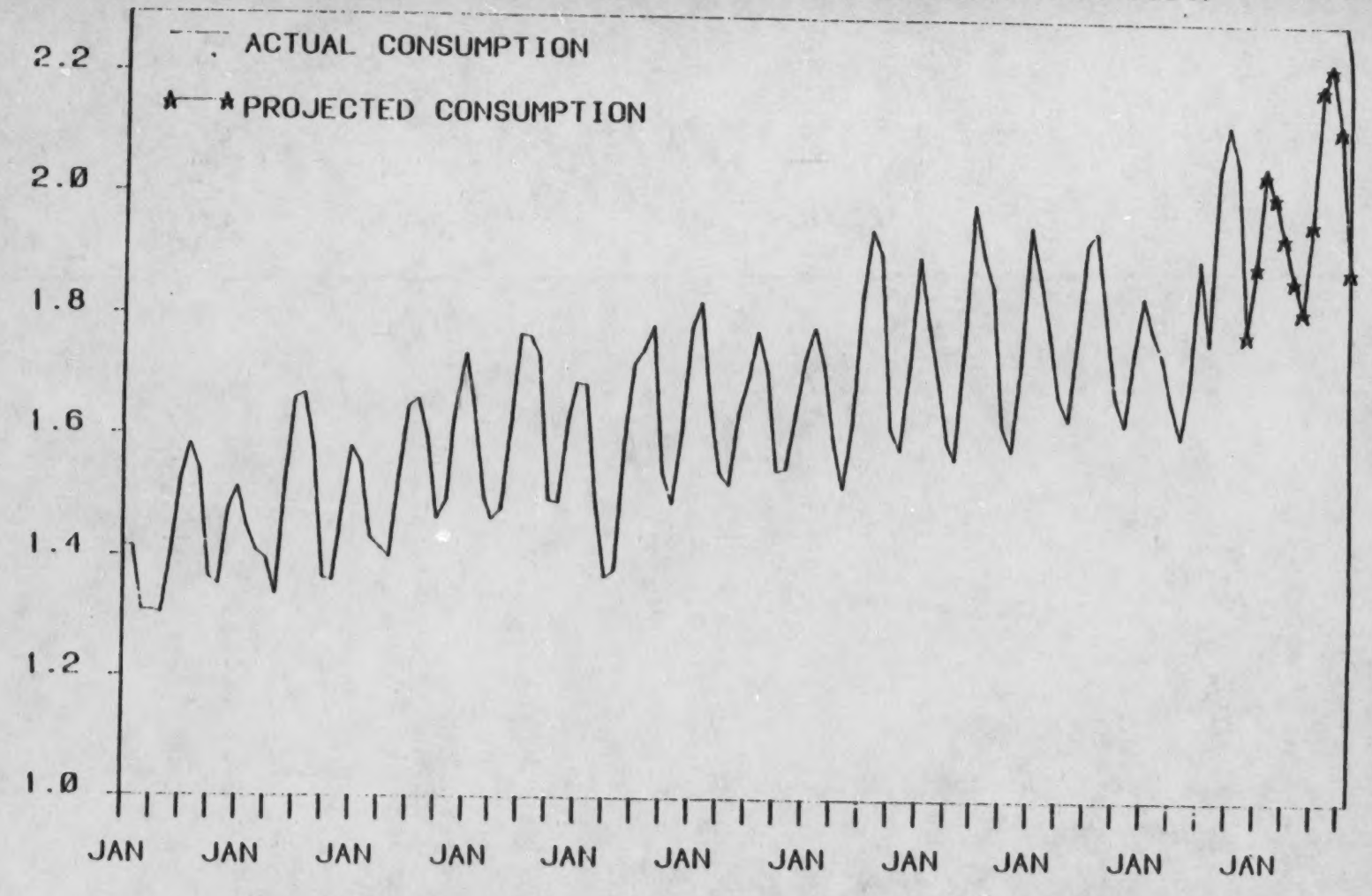
SOURCE: OHIO ELECTRIC UTILITY INSTITUTE AND THE OHIO DIVISION OF ENERGY, (EXCLUDING OVEC)

Table A-10. Independent Forecast of Ohio Electricity Demand
Commercial Sector
(1000 MWH)

	Lower 95% Confidence Limit	ODOE Forecast (1983-1984)	Upper 95% Confidence Limit	Actual (1982-1983)	Forecast Percentage Change
November	1,641	1,778	1,914	1,625	9.4
December	1,742	1,892	2,043	1,744	8.5
January	1,888	2,044	2,201	1,839	11.1
February	1,845	2,006	2,168	1,779	12.8
March	1,771	1.938	2,105	1,740	11.4
April	1,697	1,869	2,041	1,661	12.5
May	1,640	1,817	1,994	1,604	13.3
June	1,780	1,962	2,144	1,759	11.5
July	1,998	2,185	2,372	2,047	6.7
August	2,029	2,221	2,412	2,125	4.5
September	1,921	2,117	2,313	2,060	2.8
October	1,672	1,883	2,095		

Note: The forecast is based upon monthly summary statistics of the Ohio Electric Utilities Institute for eight major investor-owned electric utilities (excluding OVEC).

FIGURE A-1. MONTHLY OHIO COMMERCIAL ELECTRICITY CONSUMPTION
ACTUAL AND PROJECTED (JANUARY 1974 -- OCTOBER 1984)



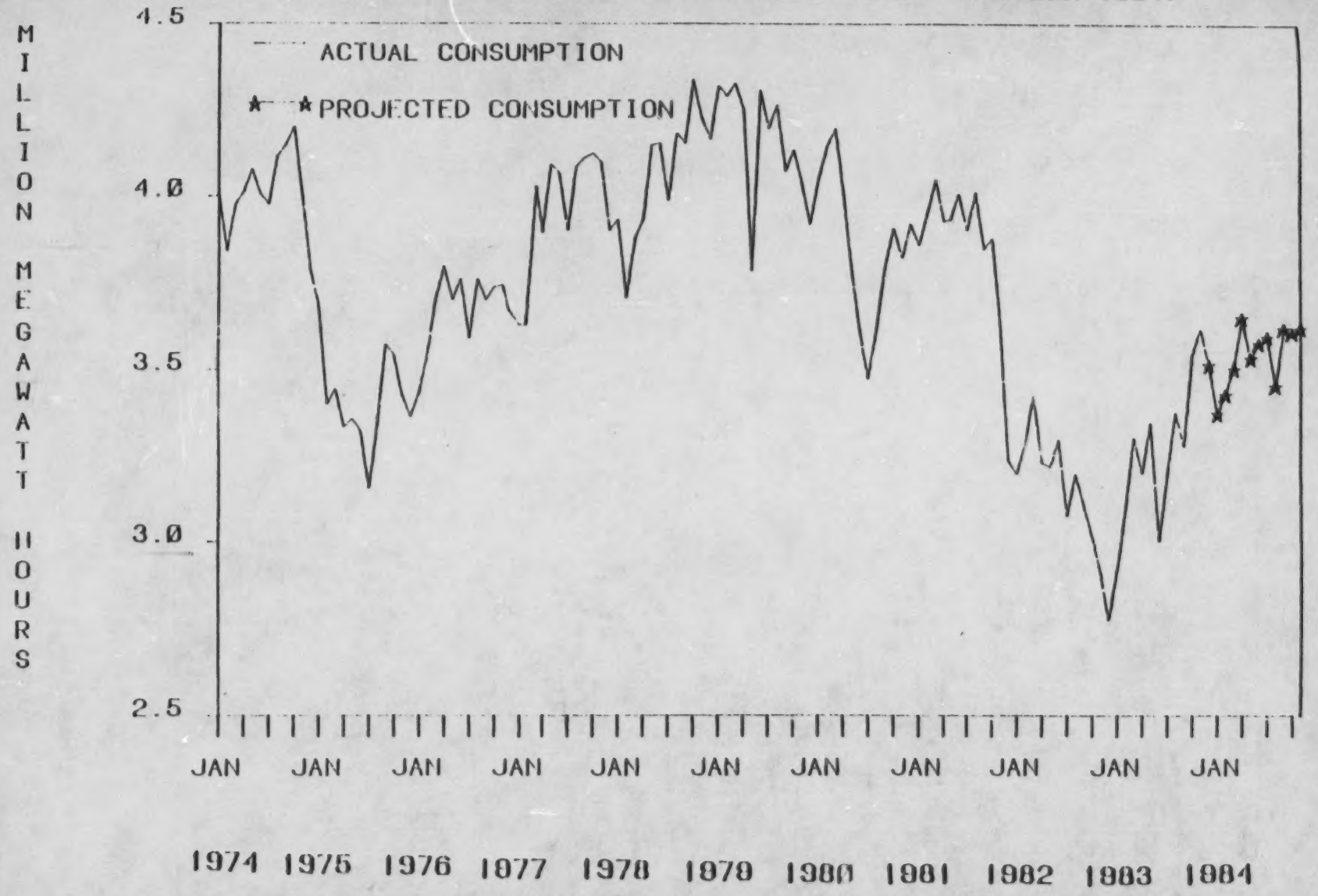
SOURCE: OHIO ELECTRIC UTILITY INSTITUTE AND THE OHIO DIVISION OF ENERGY, (EXCLUDING OVEC)

Table A-11. Independent Forecast of Ohio Electricity Demand
Industrial Sector
(1000 MWH)

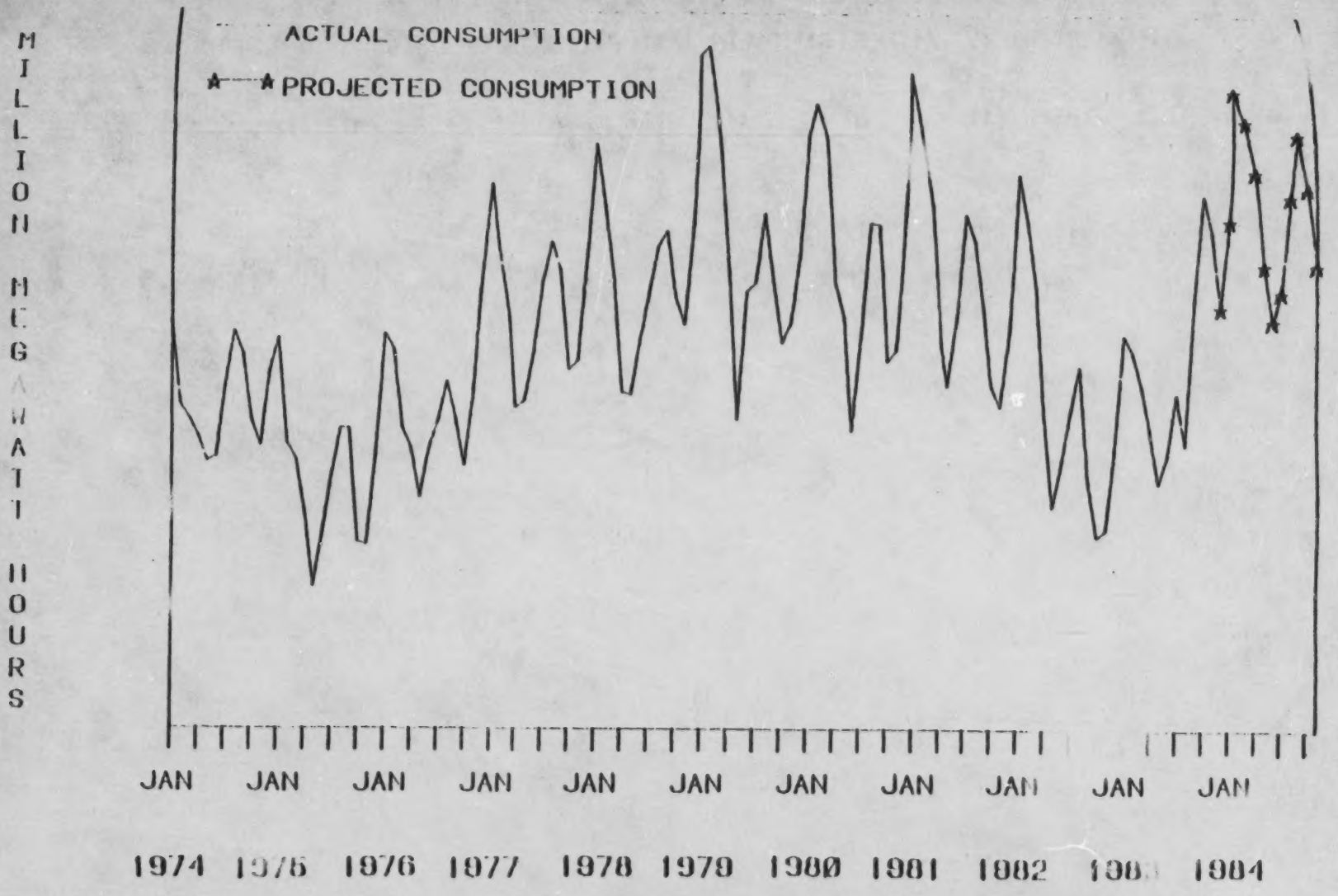
	Lower 95% Confidence Limit	ODOE Forecast (1983-1984)	Upper 95% Confidence Limit	Actual (1982-1983)	Forecast Percentage Change
Novmeber	3,180	3,510	3,840	2,911	20.6
December	2,965	3,369	3,773	2,779	21.2
January	2,958	3,425	3,891	2,921	17.2
February	2,979	3,501	4,022	3,103	12.8
March	3,075	3,646	4,217	3,302	10.4
April	2,913	3,530	4,147	3,201	9.4
May	2,911	3,570	4,230	3,342	4.9
June	2,888	3,588	4,288	3,375	6.3
July	2,711	3,448	4,186	3,281	5.1
August	2,840	3,614	4,388	3,542	2.0
September	2,793	3,601	4,409	3,616	0.4
October	2,756	3,618	4,481		

Note: The forecast is based upon monthly summary statistics of the Ohio Electric Utilities Institute for eight major investor-owned electric utilities (excluding OVEC).

FIGURE A 3. MONTHLY OHIO INDUSTRIAL ELECTRICITY CONSUMPTION
ACTUAL AND PROJECTED (JANUARY 1972 - OCTOBER 1984)



SOURCE: OHIO ELECTRIC UTILITY INSTITUTE AND THE OHIO DIVISION OF ENERGY, (EXCLUDING OVEC)



SOURCE: OHIO ELECTRIC UTILITY INSTITUTE AND THE OHIO DIVISION OF ENERGY, (EXCLUDING OVEC)

Appendix B: Natural Gas

Table B-1. Cincinnati Gas and Electric
Forecast of Natural Gas Requirements
(MMCF)

	Actual Demand (1982-1983)	Utility Forecast (1983-1984)	Forecast % Change (Utility Forecast vs. Actual)	ODOE Forecast (1983-1984)	Forecast % Change (ODOE Forecast vs. Actual)
November	7,119	7,690	8.02	6,900	-3.08
December	8,634	11,298	30.85	9,900	14.66
January	11,681	12,034	3.02	11,890	1.79
February	9,441	10,533	11.57	9,480	0.41
March	7,980	8,427	5.73	7,650	-4.02
April	6,264	5,627	-10.17	5,170	-17.46
May	3,790	3,700	-2.37	3,350	11.61
June	2,779	2,587	-6.91	2,500	10.04
July	2,525	2,478	-1.86	2,280	-9.70
August	2,396	2,498	4.26	2,340	-2.34
September	*	2,743		2,900	
October	*	4,064		4,480	

*Actual Figures were not available.

Source: SG-2 forms of the reporting utility and the Ohio Division of Energy.

Table B-2. Columbia Gas of Ohio:
Forecast of Natural Gas Requirements
(MMCF)

	Actual Demand (1982-1983)	Utility Forecast (1983-1984)	Forecast % Change (Utility Forecast vs. Actual)	ODOE Forecast (1983-1984)	Forecast % Change (ODOE Forecast vs. Actual)
Novmeber	24,508	23,932	-2.35	24,460	-0.20
December	28,892	34,093	18.00	33,040	14.36
January	37,735	40,188	6.50	40,020	6.06
February	30,828	31,580	2.44	32,090	4.09
March	26,890	26,664	-0.84	25,120	-6.58
April	21,713	19,786	-8.87	18,500	14.80
May	14,149	11,666	-17.55	13,300	6.00
June	9,233	9,207	-0.28	8,910	-3.50
July	8,127	7,482	-7.94	7,950	2.18
August	8,490	8,175	-3.71	8,500	-0.12
September	*	9,202		9,000	
October	*	14,392		15,600	

*Actual Figures were not available.

Source: SG-2 forms of the reporting utility and the Ohio Division of Energy.

Table B-3. Dayton Power and Light
Forecast of Natural Gas Requirements
(MMCF)

	Actual Demand (1982-1983)	Utility Forecast (1983-1984)	Forecast % Change (Utility Forecast vs. Actual)	ODOE Forecast (1983-1984)	Forecast % Change (ODOE Forecast vs. Actual)
November	4,748	5,407	13.88	5,130	8.05
December	5,657	7,388	30.60	7,400	30.81
January	7,352	8,418	14.50	9,130	24.18
February	7,754	8,679	11.93	8,630	11.30
March	4,482	6,626	47.84	5,670	26.51
April	5,768	4,974	-13.77	4,790	-16.96
May	2,878	2,829	-1.70	2,660	-7.57
June	2,003	2,064	3.05	1,770	-11.63
July	1,503	1,636	8.85	1,540	2.46
August	1,541	1,766	14.60	1,650	7.07
September	*	1,856		1,940	
October	*	3,099		3,130	

*Actual Figures were not available.

Source: SG-2 forms of the reporting utility and the Ohio Division of Energy.

Table B-4. East Ohio Gas:
Forecast of Natural Gas Requirements
(MMCF)

	Actual Demand (1982-1983)	Utility Forecast (1983-1984)	Forecast % Change (Utility Forecast vs. Actual)	ODOE Forecast (1983-1984)	Forecast % Change (ODOE Forecast vs. Actual)
November	26,062	27,660	7.13	30,360	16.49
December	31,981	37,401	16.95	40,160	25.57
January	40,743	43,476	6.97	46,850	15.27
February	34,047	39,282	15.38	38,560	13.26
March	31,759	32,861	3.47	32,190	1.36
April	31,847	29,709	-6.71	28,870	-9.35
May	25,881	25,405	-1.84	23,200	-10.36
June	20,393	20,403	0.05	19,500	-4.38
July	18,340	19,465	7.13	17,100	-6.76
August	19,347	19,145	-1.04	18,100	-6.45
September	*	21,076		19,740	
October	*	26,924		27,250	

*Actual Figures were not available.

Source: SG-2 forms of the reporting utility and the Ohio Division of Energy.

Table B-5. Independent Forecast of Ohio Natural Gas End User Requirements-Residential Sector (MMCF)

	Lower 95% Confidence Limit	ODOE Forecast (1983-1984)	Upper 95% Confidence Limit	Actual (1982-1983)	Forecast Percentage Change
November	18,100	28,700	39,400	26,841	7.11
December	35,300	46,300	57,300	38,216	21.38
January	46,800	57,900	69,000	50,065	15.00
February	42,900	54,100	65,300	51,699	4.66
March	27,600	38,800	50,000	38,557	0.56
April	16,900	28,100	39,400	36,593	23.12
May	8,800	13,200	19,800	20,915	-36.82
June	4,900	6,900	11,100	12,054	-42.76
July	3,800	5,300	8,500	7,789	-31.73
August	3,800	5,300	8,400	7,789	-24.34
September	4,600	6,400	10,300	*	
October	10,900	15,300	22,900	*	

*Actual figures were not available.

Table B-6. Independent Forecast of Ohio Natural Gas End User Requirements-Commercial Sector (MMCF)

	Lower 95% Confidence Limit	ODOE Forecast (1983-1984)	Upper 95% Confidence Limit	Actual (1982-1983)	Forecast Percentage Change
November	9,600	13,600	17,500	11,872	14.14
December	17,900	21,900	25,900	16,959	29.13
January	2,245	25,700	27,930	21,976	16.81
February	23,500	27,600	31,600	22,747	21.18
March	17,700	21,800	25,800	16,520	31.88
April	12,400	16,400	20,500	15,458	6.18
May	5,200	9,200	13,300	8,661	6.67
June	2,800	5,500	8,300	5,094	7.09
July	2,200	4,300	7,400	3,508	23.60
August	2,100	4,200	7,300	3,481	21.89
September	2,300	4,500	7,600	*	
October	3,500	7,500	11,600	*	

*Actual figures were not available.

Table B-7. Independent Forecast of Ohio Natural Gas End User Requirements-Industrial Sector (MMCF)

	Lower 95% Confidence Limit	ODOE Forecast (1983-1984)	Upper 95% Confidence Limit	Actual (1982-1983)	Forecast Percentage Change
November	10,800	18,700	26,600	16,757	11.82
December	12,100	21,100	30,000	16,152	30.35
January	13,800	23,600	33,300	18,409	28.05
February	13,200	23,600	34,000	19,208	22.77
March	12,400	23,200	34,100	18,008	29.03
April	10,700	22,000	33,300	17,588	25.09
May	8,600	20,200	31,800	15,449	30.59
June	7,200	19,100	31,000	13,553	40.90
July	5,500	17,600	29,700	11,678	50.46
August	7,100	19,400	31,700	12,812	51.43
September	7,800	20,200	32,700	*	
October	10,200	22,800	35,400	*	

*Actual figures were not available.

Table B-8. Independent Forecast of Ohio Natural Gas Requirements-Total-All Sectors (MMCF)

	Lower 95% Confidence Limit	ODOE Forecast (1983-1984)	Upper 95% Confidence Limit	Actual (1982-1983)	Forecast Percentage Change
November	49,000	69,700	90,400	65,684	6.15
December	72,500	93,800	115,100	78,907	18.89
January	89,900	111,500	133,100	102,323	8.95
February	69,300	91,000	112,700	86,178	5.60
March	50,000	71,800	93,600	74,561	-3.71
April	34,900	56,700	78,500	68,632	-17.33
May	28,800	40,400	52,000	48,974	-26.06
June	20,300	30,400	40,500	36,493	-24.71
July	18,000	28,000	38,000	32,412	-20.54
August	19,500	30,500	41,600	33,661	-13.93
September	21,000	339,000	46,800	*	
October	30,200	53,000	76,100	*	

*Actual figures were not available.

Table B-9. Projected Supply and Demand for Eight Major Ohio Natural Gas Utilities (MMCF)

COMPANY: [illegible] GAS & ELEC.

PROJECTED SUPPLY AND DEMAND (IN MMCF)

MONTH/YEAR	9/83	10/83	11/83	12/83	1/84	2/84	3/84	4/84	5/84	6/84	7/84	8/84	SUMMER	WINTER	YEAR
SUPPLY	3855	4654	7424	10783	12718	11548	9477	6127	3820	2991	2783	2498	25928	51950	77878
DEMAND	3855	4654	7424	10783	12718	11548	9477	6127	3820	2991	2783	2498	25928	51950	77878
DEFICIENCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% DEFICIENCY	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

COMPANY: COLUMBIA GAS

PROJECTED SUPPLY AND DEMAND (IN MMCF)

MONTH/YEAR	9/83	10/83	11/83	12/83	[illegible]	2/84	3/84	4/84	5/84	6/84	7/84	8/84	SUMMER	WINTER	YEAR
SUPPLY	11528	18327	24654	34028	40972	32359	27421	20539	12408	9933	7482	8175	68192	140234	248626
DEMAND	11528	18327	24654	34028	40972	32359	27421	20539	12408	9933	7482	8175	68192	140234	248626
DEFICIENCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% DEFICIENCY	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

COMPANY: DAYTON POWER & LIGHT

PROJECTED SUPPLY AND DEMAND (IN MMCF)

MONTH/YEAR	[illegible]	10/83	11/83	12/83	[illegible]	[illegible]	[illegible]	4/84	5/84	6/84	7/84	8/84	SUMMER	WINTER	YEAR
SUPPLY	2153	3515	5407	7388	8418	8479	6626	4974	2829	2064	1636	1764	18937	36518	55455
DEMAND	2153	3515	5407	7388	8418	8479	6626	4974	2829	2064	1636	1764	18937	36518	55455
DEFICIENCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% DEFICIENCY	0.0	0.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0%

COMPANY: EAST OHIO GAS

PROJECTED SUPPLY AND DEMAND (IN MMCF)

MONTH/YEAR	9/83	10/83	11/83	12/83	1/84	2/84	3/84	4/84	5/84	6/84	7/84	8/84	SUMMER	WINTER	YEAR
SUPPLY	23075	29085	29681	39265	44857	40485	33781	30048	25661	20506	18625	19449	164449	187191	353640
DEMAND	23075	29085	29681	39265	44857	40485	33781	30048	25661	20506	18625	19449	164449	187191	353640
DEFICIENCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% DEFICIENCY	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Table B-9. Projected Supply and Demand for Eight Major Ohio Natural Gas Utilities (Cont'd) (MMCF)

COMPANY: NATIONAL GAS

	PROJECTED SUPPLY AND DEMAND (IN MMCF)														
MONTH/YEAR	9/83	10/83	11/83	12/83	1/84	2/84	3/84	4/84	5/84	6/84	7/84	8/84	SUMMER	WINTER	YEAR
SUPPLY	1145	1145	1285	1365	1525	1445	1448	1288	1168	1094	1078	1108	7922	7048	14990
DEMAND	1028	913	985	1060	1510	1445	1448	1288	1168	1094	1078	1108	7573	6448	14021
DEFICIENCY	-117	-232	-300	-305	-15	0	0	0	0	0	0	0	-349	-620	-969
% DEFICIENCY	-11.4%	-25.4%	-30.5%	-28.8%	-1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-4.6%	-9.6%	-6.9%

COMPANY: OHIO GAS

	PROJECTED SUPPLY AND DEMAND (IN MMCF)														
MONTH/YEAR	9/83	10/83	11/83	12/83	1/84	2/84	3/84	4/84	5/84	6/84	7/84	8/84	SUMMER	WINTER	YEAR
SUPPLY	285	513	717	885	1188	850	729	478	327	404	409	229	2645	4369	7014
DEMAND	285	513	717	903	1188	850	729	478	327	404	409	229	2645	4387	7032
DEFICIENCY	0	0	0	18	0	0	0	0	0	0	0	0	0	18	18
% DEFICIENCY	0.0%	0.0%	0.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.3%

COMPANY: RIVER GAS

	PROJECTED SUPPLY AND DEMAND (IN MMCF)														
MONTH/YEAR	9/83	10/83	11/83	12/83	1/84	2/84	3/84	4/84	5/84	6/84	7/84	8/84	SUMMER	WINTER	YEAR
SUPPLY	227	316	457	619	747	732	477	321	206	144	192	200	1608	3032	4640
DEMAND	227	316	457	619	747	732	477	321	206	144	192	200	1608	3032	4640
DEFICIENCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% DEFICIENCY	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

COMPANY: WEST OHIO GAS

	PROJECTED SUPPLY AND DEMAND (IN MMCF)														
MONTH/YEAR	9/83	10/83	11/83	12/83	1/84	2/84	3/84	4/84	5/84	6/84	7/84	8/84	SUMMER	WINTER	YEAR
SUPPLY	545	880	1192	1418	1822	1745	1298	948	560	408	324	392	4049	7475	11524
DEMAND	545	880	1192	1418	1822	1745	1298	948	560	408	324	392	4049	7475	11524
DEFICIENCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% DEFICIENCY	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

APPENDIX B-10

Quantitative Analyses of Historical Natural Gas Requirements in Ohio

As indicated previously in Figures 11 through 17, the behavior of annual natural gas disposition in all sectors of Ohio has displayed distinctly different trends during the sixties and early seventies, as opposed to the rest of the seventies and the early eighties. Such discontinuous time variant trends characterize the behavior of almost all sectoral energy disposition in Ohio as well as the nation.

The Ohio Division of Energy has developed an analytical in-house methodology for the modeling and assessment of discontinuous time variant trends in annual economic and energy data series. As a result of this development, the Division is in a better position to distinguish between temporary deviations from established trends, e.g. recessions or severe climatic conditions, and changes in established long-term trends. Continued application of this methodology will lead to improved understanding of the systemic factors which are responsible for the observed discontinuities in the historical time paths of the corresponding data series. Extraction of such critical information from historical observation will invariably lead to

more accurate forecasts of Ohio's future energy requirements by sector or by fuel type, and help identify possible shortages before they become critical.

A simultaneous time-path model of historical natural gas end-user requirements in Ohio follows in Appendix B, Tables B-10 and B-10A, with sectoral end-user requirement forecasts for calendar year 1984 included earlier in Table 17.

The estimated parameters of the model describe the dynamic behavior of the magnitudes of systemic trends in Ohio sectoral natural gas requirements between 1960-1982, as well as the magnitudes of significant temporary deviations from such established trends. Such temporary deviations are interpreted to reflect the magnitude of systemic responses to temporary alterations in the historically determined "normal" operating conditions of the sectoral system in question. They may also reflect possible alterations in the methods of measurement and in the accounting procedures involved in data collection and reporting practices, which may not be known at this time. The Ohio Division of Energy makes every effort to keep the data definitions employed consistent over the domain of time under consideration.

As far as long-term trends are concerned, it is clear that the annual rates of change of natural gas requirements were positive for all sectors between 1960 and 1970. They became negative for all sectors between 1970 and 1972, and have remained

so to date. It is also clear that the recession of 1975 has resulted in a permanent decrease in the level of annual industrial natural gas requirements.

Any upturn in sectoral natural gas consumption rates will probably require significant increases in real state income relative to the real expenditures on natural gas by the respective sectoral end-users. Although it is clear that negative rates of growth cannot be sustained indefinitely, and the current levels of annual natural gas requirements in all sectors are close to those of 20 years ago, it can nevertheless be inferred that a sustained upturn in sectoral natural gas requirements in Ohio is not to be expected as long as:

1. The relative share of expenditures on energy resources continues to increase statewide.
2. The comparative advantage of the state's industrial base continues to deteriorate, thus attracting fewer firms to locate in Ohio.
3. The price per Btu of natural gas relative to that of heating oil or electricity continues to increase.

Table B-10. Integrated Time Path Models of Ohio Sectoral Natural Gas Requirements

SYSTEM: SYS1

THIRD STAGE

MODEL: RS1
DEP VAR: NGRSPOH

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T RATIO	APPROX PROB>|T|	VARIABLE LABEL
INTERCEPT	1	364.223397	2.337890	155.7915	0.0001	
T	1	10.989251	0.342627	32.0735	0.0001	
T6	1	-3.528096	0.300701	-11.7329	0.0001	
T12	1	-14.003601	0.766551	-18.2683	0.0001	
T19	1	-10.700656	1.981765	-5.3996	0.0001	
DUM7	1	-26.956922	1.613358	-16.7086	0.0001	

MODEL: CX
DEP VAR: NGCXPOH

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T RATIO	APPROX PROB>|T|	VARIABLE LABEL
INTERCEPT	1	104.728652	1.700372	61.5916	0.0001	
T	1	10.477375	0.332555	31.5057	0.0001	
T12	1	-14.992926	0.530098	-28.2833	0.0001	
DUMC	1	-27.599569	2.958169	-9.3300	0.0001	
D75	1	-20.746263	3.299454	-6.2878	0.0001	
D77	1	-19.907347	3.312535	-6.0097	0.0001	

MODEL: IX1
DEP VAR: NGIXPOH

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T RATIO	APPROX PROB>|T|	VARIABLE LABEL
INTERCEPT	1	214.032061	4.910471	43.5869	0.0001	
T	1	14.235326	0.654130	21.7622	0.0001	
T10	1	5.547303	0.364515	15.2183	0.0001	
T13	1	-26.956922	1.777834	-15.1628	0.0001	
DUMC	1	27.599569	3.259743	8.4668	0.0001	
DUM9	1	-84.678539	10.133049	-8.3567	0.0001	
D77	1	-48.651277	10.246929	-4.7479	0.0003	
D79	1	26.495242	10.166179	2.6062	0.0207	
D82	1	-58.103418	11.919962	-4.8745	0.0002	

Table B-10. Integrated Time Path Models of Ohio Sectoral Natural Gas Requirements (Continued)

MODEL: TR
DEP VAR: NGTRPOH

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T RATIO	APPROX PROB>|T|	VARIABLE LABEL
INTERCEPT	1	7.965974	0.562087	14.1721	0.0001	
T	1	0.796180	0.124554	6.3923	0.0001	
T6	1	-0.992882	0.176335	-5.6307	0.0001	
DUM9	1	-2.510593	0.836833	-3.0001	0.0074	

MODEL: EU
DEP VAR: NGEUPOH

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T RATIO	APPROX PROB>|T|	VARIABLE LABEL
INTERCEPT	1	2.685701	0.504874	5.3195	0.0001	
T6	1	4.520978	0.210630	21.4641	0.0001	
T10	1	-5.547303	0.312898	-17.7288	0.0001	
DUM9	1	-7.164357	1.275806	-5.6156	0.0001	

MODEL: TTI
DEP VAR: NGTTPOH

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T RATIO	APPROX PROB>|T|	VARIABLE LABEL
INTERCEPT	1	693.635784	6.042981	114.7837	0.0001	
T	1	36.498132	0.762976	47.8365	0.0001	
T12	1	-55.953449	1.836053	-30.4749	0.0001	
T19	1	-10.700656	2.183799	-4.9000	0.0002	
DUM9	1	-84.678539	10.133049	-8.3567	0.0001	
D75	1	-20.746263	3.635821	-5.7061	0.0001	
D77	1	-68.558625	10.283497	-6.6669	0.0001	
D79	1	26.495242	10.166179	2.6062	0.0207	
D82	1	-58.103418	11.919962	-4.8745	0.0002	

Table B-10A (Statistical Summary) Integrated Time Path Models of
Ohio Sectoral Natural Gas Requirements

SYSTEM: SYS1

THIRD STAGE

COVARIANCE ACROSS MODELS

	RS1.NGRSPOH	CX.NGCXPOH	IX1.NGIXPOH	TR.NGTRPOH	EU.NGEUPOH	TT1.NGTTPOH
RS1.NGRSPOH	19.77321796	-1.74135665	7.07782546	0.12350048	-0.87215898	12.23483442
CX.NGCXPOH	-1.74135665	7.82539250	-3.71447719	0.39979423	-0.38574863	2.19341711
IX1.NGIXPOH	7.07782546	-3.71447719	59.70699106	1.42179694	-0.02780939	64.87959323
TR.NGTRPOH	0.12350048	0.39979423	1.42179694	0.69762996	-0.37549911	1.35814469
EU.NGEUPOH	-0.87215898	-0.38574863	-0.02780939	-0.37549911	1.74867749	1.33417492
TT1.NGTTPOH	12.23483442	2.19341711	64.87959323	1.35814469	1.33417492	100.35948172

CORRELATION ACROSS MODELS

	RS1.NGRSPOH	CX.NGCXPOH	IX1.NGIXPOH	TR.NGTRPOH	EU.NGEUPOH	TT1.NGTTPOH
RS1.NGRSPOH	1.00000000	-0.13998967	0.20599116	0.03325197	-0.14832082	0.27465039
CX.NGCXPOH	-0.13998967	1.00000000	-0.17184308	0.17110823	-0.10427891	0.07826885
IX1.NGIXPOH	0.20599116	-0.17184308	1.00000000	0.22029895	-0.00272160	0.83813952
TR.NGTRPOH	0.03325197	0.17110823	0.22029895	1.00000000	-0.33997070	0.16231336
EU.NGEUPOH	-0.14832082	-0.10427891	-0.00272160	-0.33997070	1.00000000	0.10071142
TT1.NGTTPOH	0.27465039	0.07826885	0.83813952	0.16231336	0.10071142	1.00000000

INV CORRELATION ACROSS MODELS

	RS1.NGRSPOH	CX.NGCXPOH	IX1.NGIXPOH	TR.NGTRPOH	EU.NGEUPOH	TT1.NGTTPOH
RS1.NGRSPOH	1.20909764	0.33103182	0.44202780	0.03292899	0.30323100	-0.76435322
CX.NGCXPOH	0.33103182	1.44511460	1.32498639	-0.25541882	0.24728804	-1.29799578
IX1.NGIXPOH	0.44202780	1.32498639	4.72165060	-0.44135922	0.48546700	-4.15976383
TR.NGTRPOH	0.03292899	-0.25541882	-0.44135922	1.24906751	0.38768716	0.13908311
EU.NGEUPOH	0.30323100	0.24728804	0.48546700	0.38768716	1.27446514	-0.70080654
TT1.NGTTPOH	-0.76435322	-1.29799578	-4.15976383	0.13908311	-0.70080654	4.84598919

INV COVARIANCE ACROSS MODELS

	RS1.NGRSPOH	CX.NGCXPOH	IX1.NGIXPOH	TR.NGTRPOH	EU.NGEUPOH	TT1.NGTTPOH
RS1.NGRSPOH	0.06114825	0.02661203	0.01286466	0.00886599	0.05156797	-0.01715838
CX.NGCXPOH	0.02661203	0.18466992	0.06129792	-0.10931689	0.06684904	-0.04631706
IX1.NGIXPOH	0.01286466	0.06129792	0.07908036	-0.06838598	0.04751079	-0.05373743
TR.NGTRPOH	0.00886599	-0.10931689	-0.06838598	1.79044418	0.35100556	0.01662198
EU.NGEUPOH	0.05156797	0.06684904	0.04751079	0.35100556	0.72881658	-0.05290102
TT1.NGTTPOH	-0.01715838	-0.04631706	-0.05373743	0.01662198	-0.05290102	0.04828631

WARNING: DEGREES OF FREEDOM NOT ADJUSTED FOR RESTRICTIONS

WEIGHTED MEAN SQUARE ERROR FOR SYSTEM = 1.551251 WITH 113 DFS

WEIGHTED R-SQUARE FOR SYSTEM = 0.9766
THIS IS THE R-SQUARE THAT CORRESPONDS TO THE AT